The Refrigeration Service Engineer

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DETROIT

VOL. 12 NO. 6 ★ ★ ★ JUNE . 1944

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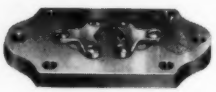

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Daily Cold Blast
DETROIT'S NEW 793
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(DU PONT METHYL CHLORIDE)

SERVICE NEWS

WAR-TIME NEWS LETTER

Dear Sir:

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Average household unit, however, contains less than 3 lbs. of refrigerant ... so there is little practical hazard from leaks ... unless discharge is confined entirely in a small room which has no ventilation ... or no change of air during leakage.

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More about "moisture effects" ... and other helpful information in our 92-page book "Du Pont Methyl Chloride." We'll be glad to send you a copy.

Very truly yours,

Thomas Coyle

THOMAS COYLE
Manager, Chlorine Products Division

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

More important than ever **-in the war on moisture**

The TORPEDO
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THE MOST FORMIDABLE WEAPON IN THE WAR ON MOISTURE
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(Patent applied for)

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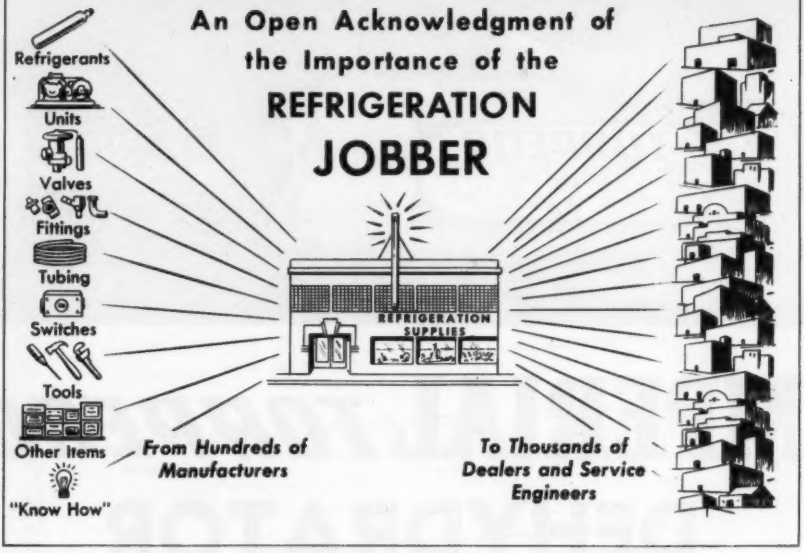
Saving You Money, Time, Trouble



Now playing a vital, patriotic role in war conservation and distribution, though short of men and materials, the refrigeration jobber has always been an invaluable part of this industry. Here are just a few of the reasons why he deserves your confidence and support:

Provides a convenient, local "one stop" warehouse for equipment, parts, tools, even advice.

Prices are no higher, sometimes lower, due to quantity shipments and exact data.

In better position to extend credit convenience where needed.

Valuable knowledge of correct installation procedure which is free for the asking and worth many dollars.

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Eliminates the need for heavy stocks carried by service companies.

In war time—offering quick spot deliveries of vital equipment; free spot advice on government regulations.

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Solenoid Valves
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Your country is asking you to make a financial investment in the future—isn't it small enough when compared to the efforts of those who fight and die?

Buy more bonds—buy double what you did before, and keep on buying them to the utmost of your ability. Back The Attack—Buy More Than Ever Before!

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MUELLER
BRASS CO.
PORT HURON,
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YOUR JOBBER
MADE IN U.S.A.
YOUR
JOBBER
IS YOUR
BUSINESS
FRIEND
Our policy for many years has been to distribute our goods on a selective jobber plan. Our experience has shown us that this policy is a sound one. It achieves for us a nation-wide distribution at the lowest possible cost. This lower cost naturally benefits not only us but also the jobber, service man and contractor.
The jobber has a distinct and important service to perform in the distribution of goods. We believe that through the services he renders, the goods actually reach the ultimate buyer at a lower cost rather than a higher one, and that selling goods direct does not reduce the cost to the eventual consumer. As manufacturers we know that if we sold direct, we would require billing, accounting and shipping forces ten to twenty times greater than what we have at present. Our transportation charges would increase tremendously; our storage space would have to be greatly enlarged. These things and many more would necessarily reflect themselves in the cost of the product.
Our post-war distribution policy will be on the same basis as it has been for many years prior to the war—distributed on a selective jobber plan. We will sell only enough jobbers in a locality to assure complete coverage of territory and trade. All trade inquiries will be referred to the jobber.
We will carry a complete line and assume undivided responsibility for—line valves, compressor valves, receiver valves, driers, heat exchanger, liquid indicators, fittings, both flare and solder type, hard drawn solder sealed copper pipe, dehydrated tubing.
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"RUN IN" LIKE A QUALITY MOTOR CAR . . .

to assure accurate performance the moment it is installed

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Hour after hour this specially designed cycling machine breaks in White-Rodgers control-switch mechanisms. Each is operated for not less than five hundred cycles to assure smooth, uniform contact action.

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Controls for Refrigeration • Heating • Air-Conditioning

Good for the Last Drop . . . .

. . . . of MOISTURE!

Thawzone is not only excellent for most cases of moisture in refrigeration systems, but, paraphrasing a famous slogan, it is good for that last drop of moisture which becomes sidetracked or "trapped."

Thawzone is a moving dehydrant. It circulates, searches out that "last drop," destroying it chemically wherever it finds it. Sold by refrigeration supply jobbers in the United States and Canada.

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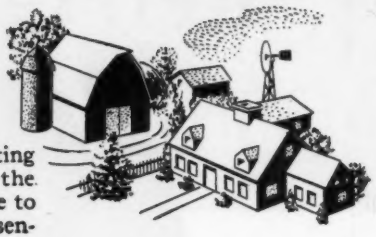
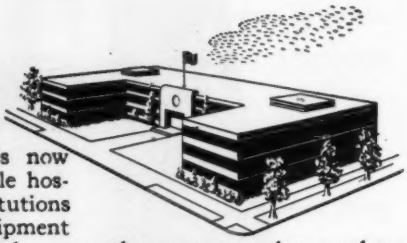


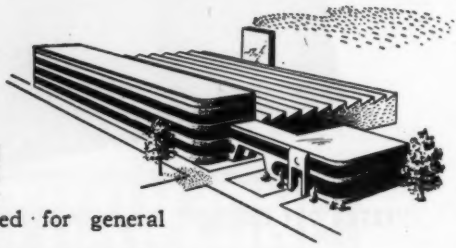
FARMS

With the recent relaxation of limiting orders on commercial refrigeration, the government has now made it possible to supply new equipment for certain essential uses.



INSTITUTIONS

For example a dairy farmer is now eligible to buy milk coolers; while hospitals, hotels and all those institutions that require new refrigeration equipment for essential food preservation and many other uses can also purchase new units.



INDUSTRIAL PLANTS

Special processes employing refrigeration (many developed for and used only on war equipment) are now released for general industrial use.

The priority regulations are changing almost daily making materials available for previously "frozen" products. When your products are released, remember—Chieftain units are still the leader.

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"UNDER PRESSURE" THE CHARACTERISTIC PRECISION AND DEPENDABILITY OF

KEROTEST BRASS VALVES

FOR AIR CONDITIONING AND REFRIGERATION SERVICE

KEROTEST QUALITY NEVER VARIES

Kerotest has, since its inception, developed many new and frequently revolutionary type valves to solve complicated industrial control problems. In World War II, Kerotest research and engineering organization is demonstrating its ability to maintain unvarying dependability and precision, despite an unprecedented demand for production. It is meeting that production demand with Kerotest quality valves. With many techniques in utilizing new materials, and designs evolved out of the war program by our research staff, *Kerotest offers you a dependable and satisfactory source for post-war valves.* Kerotest is looking forward to the time when it can convert its war production to peace-time needs.

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FORTRESS

Ask Your Jobber

91-0

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Ranco Inc.

COLUMBUS, OHIO

The Refrigeration Service Engineer

Vol. 12 No. 6

June, 1944

A Monthly Illustrated Journal Devoted to the Interests of the Refrigeration Service Engineer in the Servicing of Domestic and Small Commercial Refrigeration Systems and Oil Burners

Official Organ
REFRIGERATION SERVICE ENGINEERS SOCIETY

The Cover

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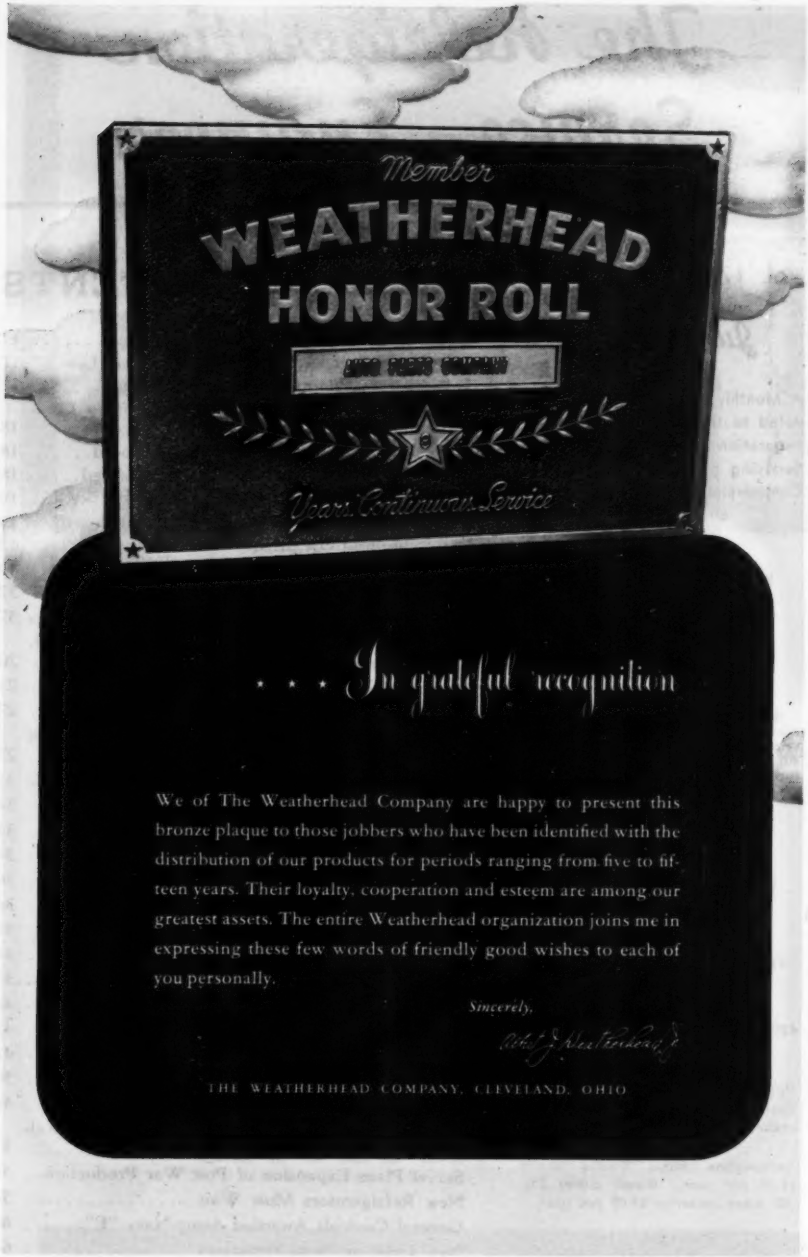
TABLE OF CONTENTS

Government Bureaus—News and Rulings..... 17
Inventories of Repair Parts Dangerously Low... 17
Rules for Obtaining Materials Clarified..... 17
Organization Meeting Industry Advisory Committee 18
Stockpile of New Refrigerators Reduced..... 18
Orders for Repair Parts May Be Uprated..... 18
WPB Order L-38 Amended..... 19
Frozen Food Locker Requirements Tightened... 19
Exception in Use of Insulating Materials..... 19
Summaries of WPB Orders..... 19
Ice Cream Quotas Raised..... 57
Combat Materials Made by Refrigeration Plants 57
How to Use a Home Freezing Cabinet—*by J. D. Winter and Andrew Hustrulid*..... 20
Servicing General Electric CA Machines..... 23
Commercial Selling 27
Huge Post-War Market Indicated in Demand for Home Freezer Units..... 27
Draft Status Clarified—More Deferments Possible 31
The Question Box..... 34
Methyl Chloride in Galvanized Pipe..... 34
Changing from SO_2 to Methyl..... 34
How to Arrive at Pressure Settings..... 36
Grunow Erratic 36
Service Council Establishes Training Schools.... 38
Ceiling Violations Charged..... 38
Chicago Distributor Moves Into Larger Quarters. 38
National Refrigeration Service Council..... 40
R.S.E.S. News 42
Chapter Notes 42
Ladies Auxiliary 50
New and Improved Appliances..... 48
Three Assistant General Sales Managers for Kelvinator 52
Servel Plans Expansion of Post War Production.. 54
New Refrigerators Must Wait..... 58
General Controls Awarded Army-Navy "E"..... 60
New Ideas on Soda Fountains..... 60


Member
WEATHERHEAD
HONOR ROLL
Years Continuous Service
. . . In grateful recognition
We of The Weatherhead Company are happy to present this bronze plaque to those jobbers who have been identified with the distribution of our products for periods ranging from five to fifteen years. Their loyalty, cooperation and esteem are among our greatest assets. The entire Weatherhead organization joins me in expressing these few words of friendly good wishes to each of you personally.
Sincerely,
THE WEATHERHEAD COMPANY, CLEVELAND, OHIO

Government Bureaus—News and Rulings

RULINGS and announcements issued by the various government bureaus that are of general interest to the refrigeration service industries are summarized below. The more important facts are covered in these summaries. Those who require further information on any order or ruling are advised to write the proper government agency.

S S S

Inventories of Repair Parts Dangerously Low

INVENTORIES of repair parts for refrigeration and air conditioning equipment are dangerously low at present, the General Refrigeration and Air Conditioning Industry Advisory Committee reported at a recent meeting held in Washington with representatives of the Refrigeration and Air Conditioning Section of the War Production Board.

To correct this situation, the committee recommended (1) that WPB make every effort possible to expedite processing of Form WPB-547 (formerly PD-1X), (2) that a higher rating be made available to the industry for obtaining production materials with which to make the necessary repair parts, (3) that inventory provisions of Order L-63, distributors' inventory limitation order, be relaxed to take care of seasonal demands for repair parts for refrigeration and air conditioning equipment, and (4) that all other possible steps be taken to speed deliveries of repair parts to replenish diminishing inventories.

An extensive discussion of the work of task committees which are studying the problem of future programming for various segments of the refrigeration and air conditioning industry was held. An outline of an organization meeting of the task groups which was held in Chicago April 27, 1944, was presented to the committee.

It was agreed by the committee that a study of past production by units for various segments of the industry should be made to gain information for future industry planning. The Program Task Committee will work with section representatives and officials of the Bureau of the Census in the development of a questionnaire.

The committee received a report from WPB officials on the current availability of Freon 12. The supply of this item continues to be short, and May allocations will not provide for any but the most essential uses.

The industry group discussed the practices which are followed by the WPB Appeals Board in considering appeals under Order M-28, the Freon use restriction order.

A directive issued to Kinetic Chemical Company, further restricting its deliveries of F-22, another of the Freon gas family, was discussed by both committee members and WPB officials as indicating the general trend in supply of F-22.

The committee reviewed a recent amendment to Limitation Order L-88, which provides that regional and district WPB offices may process Form WPB-1319 applications for certain types of air conditioning and refrigeration equipment. In connection with this new procedure, it was announced to the group by WPB officials that a meeting will be held in Washington with WPB field office representatives to assure a uniform processing procedure for these forms.

Lt. Col. K. D. Pulcipher of National Selective Service Headquarters discussed the manpower situation which affects the industry in the light of recently revised Selective Service regulations. He outlined the procedure which industry members should follow in appealing for deferments of their employees.

S S S

Rules for Obtaining Materials Clarified

RULES governing the use of the maintenance, repair and operating supplies (MRO) procedure for obtaining minor capital additions have been clarified by the issuance of an amended interpretation, the War Production Board announced May 27. The MRO procedure may be used to obtain materials and equipment for minor capital additions where the cost of such addition does not exceed $500, excluding the purchaser's cost of labor. This is provided for in CMP Regulation No. 5.

Interpretation No. 11, as amended May 22, 1944, to CMP Regulation No. 5, points out that all labor costs involved in the manufacture of the material or equipment must be included in figuring the cost of an addition. On the other hand, the cost of labor

used in construction or installation of a minor capital addition need not be included in figuring the cost.

The interpretation also points out that this rule applies whether the owner of the plant uses his own employees to do the construction or installation work or hires an independent contractor to supply labor for the construction or installation. It also applies where the owner of the plant gets an independent contractor to furnish the materials and labor for the job, and where the owner of plant buys a machine or other article and has the seller do the work of installation.

The same general rules apply to determining the cost of materials needed for installation or relocation of equipment, where such materials are brought under procedures established in Direction No. 15 to CMP Regulation No. 5. This direction permits acquisition of materials costing $500 or less for the relocation of equipment which a manufacturer has in his plant.

Interpretation No. 12 states that when an increased quota of MRO purchases has been specifically authorized without seasonal limitations, it applies to all following quarters. When a seasonal quota has been increased specifically for a single quarter, however, this increase applies only to that quarter.

S S S

Organization Meeting Industry Advisory Committee

AN ORGANIZATION meeting of the newly appointed members of the industry advisory committee representing manufacturers of commercial refrigeration condensing units will be held with officials of the Office of Price Administration in Washington on Tuesday, June 13, 1944. After the election of officers, a discussion of pricing problems of the industry will be held with OPA representatives.

Members appointed to the committee are: Charles Knox, Baker Ice Machine Corp., Omaha, Nebr.; B. J. Scholl, Brunner Mfg. Co., Utica, N. Y.; V. S. Day, Carrier Corp., Syracuse, N. Y.; Frank J. Gleason, Copeland Refrigeration Corp., Sidney, Ohio; John P. Rainbault, General Electric Co., Bloomfield, N. J.; Harry Newcomb, Servel Inc., Evansville, Ind.; F. K. Smith, Tecumseh Products Co., Tecumseh, Mich.; T. S. Pendergast, Universal Cooler Corp., Marion, Ohio; Marshall G. Munce, York Corp., York, Pa.

Stockpile of New Refrigerators Reduced

THE stockpile of new household mechanical refrigerators has been reduced to about 15 per cent of its original size early in 1942, when production was stopped, and only highly essential military and public health needs can be met, the War Production Board said May 18. Every effort is being made to maintain and keep in service the 20,000,000 mechanical refrigerators already in homes, WPB said.

In accordance with predetermined programs, subject to periodic revision in relation to the existing supply of mechanical refrigerators, WPB has authorized releases to each of the claimant agencies—the War and Navy Departments, Maritime Commission, War Shipping Administration, Office of Civilian Requirements, the National Housing Agency, and others. During the last two years, 250,000 mechanical refrigerators, principally of the de luxe type, representing a surplus over the claimants' estimated requirements, have been released to retail stores for sale to consumers able to certify that no other refrigeration equipment is available to them. The last release to dealers was made in April, 1943. The frozen stockpile has now become so small that further releases of this kind cannot be expected, WPB said.

To conserve the limited quantity of refrigerators remaining in the stockpile, it has become necessary to adopt more rigid criteria in making releases to the claimant agencies. In general, mechanical refrigerators are being released only to serve purposes of the highest essentiality for the largest possible number of persons, and then only if ice equipment cannot be used.

S S S

Orders for Repair Parts May Be Uprated

THE Refrigeration and Air Conditioning Section of the General Industrial Equipment Division of the War Production Board has informed manufacturers and trade associations of the refrigeration industry that WPB is prepared to uprate to AA-1 orders for certain repair parts used by the industry.

This move has been taken to help solve difficulties that have developed in manufacture, delivery and installation of repair parts, WPB said. At present, the agency added, the repair parts covered are in short supply.

The telegram which the Refrigeration and Air Conditioning Section sent to the industry, telling of this action, follows:

"Please issue bulletin to your members, dealers and distributors informing them that wholesale and retail trades division is prepared to uprate to AA-1 repair parts for commercial and industrial refrigeration and air conditioning equipment, orders for which have been placed before February 15 and are as yet undelivered. The program covers the following times: controls (pressure and thermostatic) capacitors and/or starting condensers for motors, control bellows, solenoid valves, liquid line strainers, refrigerant dehydrators, thermostatic and automatic expansion valves, compressor bodies, compressor repair parts, including but not limited to pistons, rings, flapper and disc valves, crank shafts, seals, piston pins, high and low slide float valves. Program is limited to the items enumerated. Have PD-547 filed or refiled for uprating. Forms should clearly designate in section four that request is against special program refer to GIEQ program determination number twenty eight. Give case number and item number of PD-547 on which previous rating was received, or if for uprating of MRO rating, list each MRO rating for which uprating is requested.

S S S

WPB Order L-38 Amended

AFTER May 25, 1944, applications for priorities assistance for refrigeration equipment other than industrial processing and air conditioning equipment will be filed with local War Production Board field offices, WPB has announced. Such applications will be made on form WPB-1319, which will be processed in the field. After May 25, the use of Form WPB-2448 will be discontinued.

Applications for priorities assistance for industrial processing and air conditioning equipment will continue to be filed with WPB in Washington on Form WPB-2449.

These changes in instructions for filing priority applications are contained in Limitation Order L-38, as amended May 10, 1944.

S S S

Frozen Food Locker Requirements Tightened

DEMANDS for new frozen food locker plants and expansions of similar existing facilities have reached such proportions that the War Food Administration has found it necessary to tighten requirements governing these installations. Last fall it was estimated that materials and machinery would be available in 1944 to permit construction of approximately 550 plants averaging 400 lockers each. Anticipating that this number would not supply the demand the WFA Office of Materials and Facilities set up general requirements to be met by applicants. These were designed to insure equitable distribution and a maximum contribution of such plants to the war food program.

S S S

Exception in Use of Insulating Materials

THE exception made from Conservation Order L-41 for insulating buildings with certain materials applies only to the insulation of existing buildings without change in the use of these buildings, the War Production Board said May 24. The ruling states that the exception does not apply to the use of insulating materials in the original construction of a building, to an alteration to a building, or to a conversion from one purpose or use to another.

For example, if an existing building is being converted from a store to a frozen food locker plant, the cost of the insulating materials installed must be included as part of the cost of conversion subject to the cost limitations of Order L-41 as these materials are being used to convert a store to a locker plant, not to insulate a store. This ruling is made in Interpretation 7 to Conservation Order L-41. The interpretation was issued May 23, 1944.

S S S

Summaries of WPB Orders

THE War Production Board on May 8 issued summaries of modifications of WPB orders between January 12 and April 1, 1944, for the convenient reference of persons interested in various orders. Anyone wishing to take appropriate actions under WPB orders should use the official copies of full orders. The following rulings will be of interest to the refrigerating industry:

Food Processing Machinery—(Schedule to L-292, 3-14-44). Production of brewery, winery, beverage and ice-cream making machinery now permitted, and sale of used food-processing and canning machinery and equipment without restriction.

Refrigerating and Air Conditioning Machinery and Equipment—(Revocation of Schedule II to L-126, 3-10-44). Specifications for construction were revoked permitting use of steel in construction of bases and removing standardization restrictions.

(Continued on page 57)

How to Use a Home Freezing Cabinet

By J. D. Winter and Andrew Hustrulid

University Farm, St. Paul, Minn.

A HOME freezing cabinet should maintain a temperature of 0° F. in the lower half of the storage space, and not higher than 5° F. a few inches below the top cover. The temperature from top to bottom is likely to differ from 4 to 6° F., and sometimes this difference will be greater, especially in units having considerable depth. Many old ice cream cabinets, originally designed to maintain a temperature of about 10° F. are being used for frozen food storage. Such cabinets are not well suited to hold a temperature of zero, but may be used with good success if held within a range of about 4 to 7° F.

Long continued storage should not be attempted at any temperature above 10° F. Certain microorganisms that may affect quality are capable of growing at low temperatures, although comparatively few grow to an appreciable extent below 19° F. and the lowest limit for growth is believed to be about 14° F. The dangerous botulinus toxin is not known to develop below 40° F.

Size of Freezing Cabinet

In general, cabinets of less than eight cubic feet soon are found to be too small, unless used to supplement rented locker storage space. Cabinets for farm use should have a capacity of at least 25 cubic feet, or five to six cubic feet per person, and many urban families will not be satisfied with less than three to four cubic feet per person.

Length of Storage Period

A home freezer should not be used to find out how long something can be kept and still be edible. There should be a fairly rapid turnover. Too long storage at 10° F. or lower will result in meats becoming rancid and other products will become unpalatable but not dangerous to eat. The time that good quality products may be expected to remain in good condition, when properly prepared and packaged, will depend largely on the storage temperature, as indicated in the next column.

The public is interested in home freezing cabinets as evidenced by the many inquiries coming to service men. This article will provide an authentic answer to many of these questions. It was written by members of the staff of the University of Minnesota Agricultural Extension Service. Extension Folder 111, covering the same subject, is available from the University of Minnesota.

	Approximate Storage Period (months)		
	At 0° F.	At 5° F.	At 10° F.
Fruits, vegetables, beef, veal.....	10 to 12	8 to 10	3 to 4
Lamb, mutton, poultry, eggs...	8 to 10	6 to 8	3 to 4
Pork, butter.....	6 to 8	4 to 6	2 to 3
Ground meat (unsalted), cream..	4 to 6	3 to 4	1 to 2
Pork (mild cured or salted, not smoked)	3 to 4	2 to 3	1 to 2
Fish, ground meat with salt in seasoning	3 to 4	2 to 3	1 to 2

Freezing the Products

Most cabinets are designed for storage rather than for freezing foods. In such cabinets, only a small quantity of food can be frozen properly at one time, usually not more than 10 per cent of the total capacity. The packages of warm food should be placed near the bottom and against the wall of the cabinet, and should be spaced to permit air circulation. They should remain there for twenty-four hours after which the containers may be packed close together. When freezing occurs too slowly, the product may lose quality or even start to spoil before it is cooled enough to retard bacterial growth.

It is desirable to adjust the cold control to —10° F. before placing warm food in the freezer. Foods may be frozen outdoors in very cold weather and placed in the freezer the next day. Very rapid freezing (quick freezing) is not possible in the ordinary home-freezing cabinet. However, very rapid

freezing is not essential. Results will be entirely satisfactory with fruits and vegetables if the product becomes completely frozen within 10 hours after being placed in a freezer at 0° to —10° F.

When possible, it is best to have meats cut and frozen at a locker plant, and this will be necessary if a large quantity is to be frozen at one time. In this way, one may secure the advantages of locker plant service such as proper chilling, expert cutting, and more rapid freezing. The palatability of meat frozen at a slower rate will be good, although its all-round quality when thawed and cooked will not be equal to meat frozen more rapidly. Pork should be frozen as soon as the carcass is chilled, and most beef should be aged no longer than five to 10 days. Longer aging will hasten rancidity in storage. Salt used in ground or cured meat or oily types of fish also hastens the development of rancidity. When preparing poultry for freezing, do not use water warmer than 130° F., or dry pick, to obtain a product of attractive appearance. It is very desirable to remove body heat by immersion in ice cold water for three to four hours immediately after picking, before drawing and washing.

Preparing Fish

Small fish, after scaling and cleaning, may be frozen without further preparation. Large fish such as bass and pike, when cut into fillets or steaks, should be rinsed in brine made with one cup of pure table salt per gallon of water. Do not use brine with oily fish. Eggs should be broken, the yolks mixed well without beating in air and one teaspoon salt (or one tablespoon corn syrup or honey) added to every two cups of yolk. Egg whites need no treatment before freezing. If preferred, yolks and whites may be mixed and handled in the same way as yolks. New-laid eggs are best held in the shells at room temperature for three to five days before breaking to avoid thick, gummy yolk on thawing. Cream will keep better if ten per cent sugar by weight is added before freezing. Cheese will keep well when properly wrapped. Avoid freezing thin slices of any product such as bacon, fish, or cheese. Do not store ice cream over three weeks. In general, containers or packages of food should be no larger than will be used or cooked at one time. Thin cream does not freeze well.

Cold air in the average freezing cabinet is relatively dry, so there will be a steady loss of moisture from the product unless it is protected by the right kind of packaging or wrapping. Frozen foods lose moisture in the form of moisture-vapor which is just another name for air-borne moisture. A packaging material may be waterproof, but not moisture-vapor proof. The two terms should not be confused. Failure to understand the necessity for protecting frozen foods from moisture loss is responsible, in many instances, for unsatisfactory results after two or three months of storage. Rancidity in meats will develop sooner when poorly wrapped. So-called "freezer burn" of poultry is caused by excessive loss of surface moisture. This may be recognized by the appearance of discolored areas of irregular shape on the skin surface. A similar condition known as "pock marking" appears as lighter-colored circular spots around the feather follicles. Careful wrapping will avoid or reduce such discolorations. Unwrapped poultry frozen in the cold air blast from a fan is especially susceptible to this condition.

Containers for Fruits and Vegetables

Most containers made especially for frozen foods have been found satisfactory. Containers made for other purposes, with few exceptions, are unsatisfactory except for relatively short periods of storage. A glass jar with tight cover, although bulky, effectively retards loss of moisture. Some containers have inside bags of moisture-vaporproof cellophane. These bags should be soft and pliable when used. If they have become dry and brittle put them in a damp cellar or room for at least 24 hours before using, or place them in a box with open top and cover with damp cloths. Do not store the cellophane bags near dry heat nor in a mechanical refrigerator. Not all cellophane is moisture-vaporproof. Any cellophane that is self-sealing when heat is applied is the moisture-vaporproof type. An iron at heat suitable for wool is about right for sealing cellophane. Do not leave air spaces at top of containers except with liquid packs (allow 10 per cent total volume for expansion).

Wrapping Materials

Moisture-vaporproof cellophane, or similar cellulose film provides exceptionally good protection against moisture loss. It is particularly useful to lengthen the storage period of fish, cut poultry, pork tenderloin, or other products readily affected by drying out

(desiccation) and contact with air (oxidization). For most wrapping purposes, a good wax-coated locker paper will provide sufficient protection and is considerably less expensive than cellophane. Ordinary meat-wrapping papers and waxed sandwich paper are not satisfactory. Most paper supply firms and many locker storage plants sell waxed locker papers and frozen food containers. An 18- or 20-inch width of paper is recommended for general use.

Enough paper should be used so that the ends may be creased and folded over to make the package as air-tight as possible and prevent loss of moisture-vapor through open folds. Avoid unnecessary creasing, as the rate of moisture loss may be tripled through badly creased paper. Double wrapping, consisting of two separate wrappings, is desirable but more than two layers of paper do not materially decrease the moisture-vapor loss. Wrap tightly to avoid air spaces. Each package should be marked to show the contents and date. A china marking pencil will be needed to mark waxed surfaces.

Storing Packages in the Freezer

It is desirable to leave a space of several inches at the top, rather than overcrowd the cabinet by filling it to the cover. If the bottom of the cabinet is not made of metal and has no freezing coils or plates beneath it, a low wire rack of similar support should be placed at the bottom to provide some circulation. An inventory chart will be found very useful to record the number and contents of packages placed in the freezer and those withdrawn.

The average cabinet will require defrosting every five to six months, or when the frost accumulation inside becomes over one-quarter inch thick. The frozen food when removed should be covered with a heavy blanket while defrosting. Defrosting may be hurried by placing pans of hot water in the cabinet, or by using other forms of heat. Defrosting of large farm freezers often can be accomplished best by scraping off the accumulated frost with fibre brush or wooden paddle. Ice (not frost) near the top may indicate a poorly fitting cover.

The amount of electrical energy required will vary a great deal according to the size of the cabinet, the amount of effective insulation, the room temperature, and the amount of warm food frozen. The average freezing cabinet of 6 to 8 cu. ft. capacity should operate on 7 to 10 kw.-hrs. per month per cu. ft. of space, while very small units of about three cubic feet may be expected to use 15 to 20 kw.-hrs. per month per cu. ft. Better insulated cabinets of larger size (30 to 40 cu. ft.) will require only 1½ to 2 kw.-hrs. per cu. ft. per month.

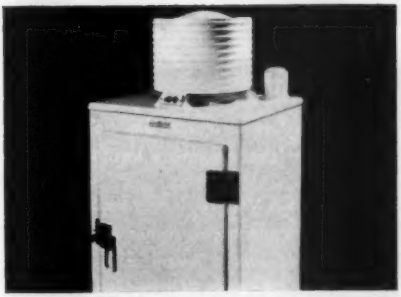
Often, the freezing of cooked products will be found convenient to keep them fresh for later use. A wide variety of such products may be frozen, such as soups, stews, baked beans, rolls and other bakery goods. In fact, the majority of cooked foods or leftovers from the table may be kept in surprisingly good condition by wrapping and freezing.

Directions for the preparation of garden products for freezing are given in Extension Folder No. 111 which may be obtained from the Bulletin Office at University Farm, St. Paul. Complete mimeographed directions for preparation of poultry for freezing may be obtained from the Division of Animal Husbandry at University Farm.

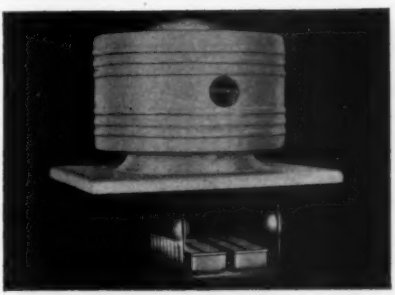
There can be no cold weather starting trouble for U. S. army and navy fighting planes. To guard against failure under frigid conditions aircraft engine starters produced at the Eclipse-Pioneer division of Bendix Aviation Corporation at Teterboro, N. J., must pass a rigid series of performance tests, including this check-up in an icebox which simulates extreme sub-zero weather, and helps determine correct lubricants. The corporation produces aircraft starters at the rate of thousands per month.

Servicing General Electric CA Machines

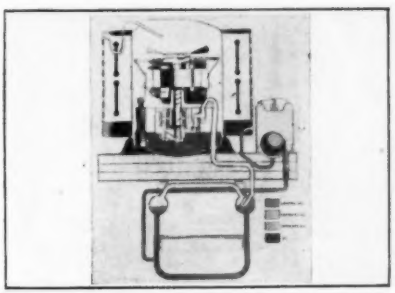
This is a picture story of the recommended methods employed in field service of the General Electric CA refrigerating machines. The pictures are taken from an educational film produced by the General Electric Co. It provides a much needed better understanding of the operation of this machine and the methods employed in diagnosing and correcting troubles. The special design and character of the machine demands that these instructions be followed very carefully. The methods used differ quite widely in some instances from those employed on other types for the same troubles.—Editor.



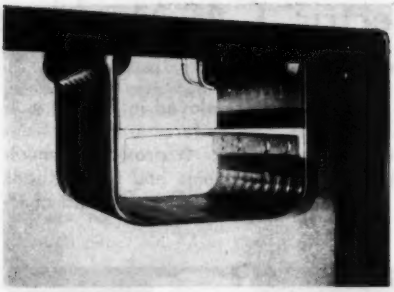
(1) In 1933 General Electric introduced the CA sealed refrigerating machine. With it came the first stainless steel evaporators and closed condensers. This is the CA-2 Form A machine. The CA-1A is similar but has a smaller evaporator and box top. Form A machines are easily recognized by the evenly spaced condenser tubes and the float valve on the box top corner.



(2) Here is a CA-1 Form B machine. There is a corresponding CA-2 Form B with a larger evaporator and box top. Form B machines, made during 1934, can be identified by the later style condenser . . . and by the float valve and its extension located behind the condenser.



(3) Internally, the CA machine is different from all other G-E mechanisms. A rotary type compressor handles the extremely low pressure refrigerant . . . Methyl Formate. Almost odorless, it is an extremely low pressure refrigerant.



(4) The pressure in the evaporator will always be less than atmospheric; that is, a partial vacuum. Also, the higher pressures in the case and condenser will often be less than atmospheric. If the system is opened up when the condenser is cool, air will probably flow in, instead of refrigerant coming out. It is important to remember this characteristic in making adjustments to the CA machine.

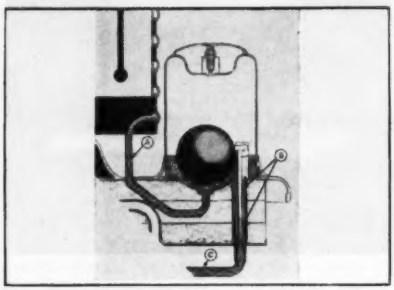
Non-Condensable Gas does not change into a liquid

In a CA Machine, it may be air, or combination of other gases formed over a period of years from slight moisture in the system

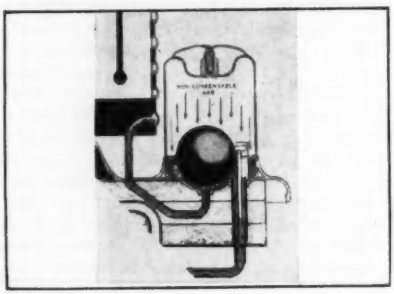
(5) We are going to discuss the following problems: Non-condensable gas . . . leaks . . . low refrigerant . . . bad oil conditioner . . . check valve leak . . . and machines that will not run.

Non-condensable Gas

First, let's consider non-condensable gas. By definition, non-condensable gas is any gas that does not change into a liquid. In a CA machine, it may be air or it may be a combination of other gases formed over a period of years from a slight amount of moisture in the system.

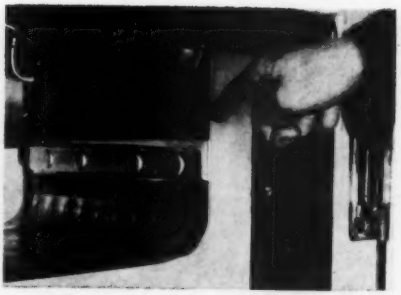


(6) Collecting in the float valve, non-condensable gas restricts operation of the valve. Normally, liquid refrigerant flows into the float chamber through tube A. The ball floats, raises the needle valve B, permitting refrigerant to enter the evaporator through tube C. Non-condensable gas collects and stays in the upper part of the float valve chamber.



(7) As more and more gas collects, pressure is built up against the liquid refrigerant flowing into the chamber. Finally, enough pressure is built up to stop the flow entirely.

(8) The result is—first, a lowering of the frost line on the right side to a point below the header. Then, the frost may drop all the way to the bottom; until, finally, there will be no frost and no refrigeration.



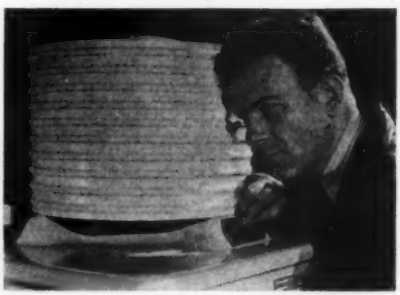
(9) A cool float valve is another symptom that makes non-condensable gas easy to recognize. This is caused by the non-condensable gas insulating the float valve shell from the warm liquid refrigerant.

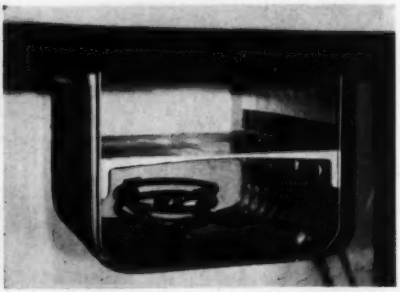
(10) With the machine running, place one hand on the float and the other hand on the upper part of the condenser. If the float is cooler than the condenser, you know that non-condensable gas has collected.

(11) In addition to having a low frost line and a cool float valve, the machine will probably be noisy.

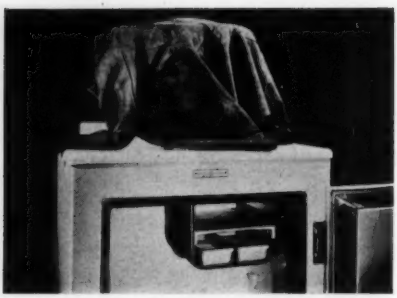
No Refrigeration

"No refrigeration" and noise complaints caused by non-condensable gas can be corrected by "bleeding" this gas from the system. Let's see this done step by step.

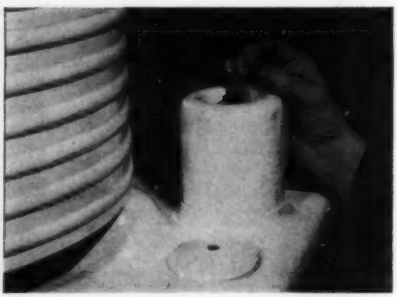




(12) Heat the machine. This raises the internal pressure so that it will be above atmospheric and air will not be drawn into the machine. Use an electric heater in the evaporator—



(13) Or, put pans of hot water in the evaporator, and cover the condenser. Just don't let the condenser get hotter than the hand can stand.



(14) Keep the machine running all the time so as to maintain an outward pressure. Remove the float valve cap and the auxiliary sealing screw.

(15) Put light oil in the purging screw socket.

(To be Continued)

COMMERCIAL

INCREASE BUSINESS BY DOING A MORE EFFECTIVE JOB OF *Selling*

Huge Post-War Market Indicated in Demand for Home Freezer Units

THE demand for home freezer units spreading throughout the country for several months indicates that as soon as materials for their manufacture are available a huge market will be opened. Since the first interest is among the better farmers, those who already have locker service, there will be a good opportunity for sales and service companies serving small towns to get into this business.

Locker operators particularly are very much interested in this new trend and many of them have expressed their intention of making these units available to their patrons. However, they are not equipped by training or facilities to provide service and here is where local sales and service concerns fit into the picture.

The market, of course, is not confined to rural patrons. City people, particularly those with gardens, or with large families, also will find them useful as an addition or adjunct to their household refrigerators.

While all the models described in this article are not available at this time, the information is offered to provide service men and others with an idea as to what will be available as soon as materials for their manufacture can be obtained.

THE QUICFREZ FARM LOCKER

THE Sanitary Refrigerator Co. of Fond du Lac, Wis., was one of the large manufacturers of farm freezers pre-war. These pre-war models were marketed under the Continental brand name but for several months the name "Quicfrez" has been used to cover all models.

The newest model, and one which the company looks forward to manufacturing is Model No. 1544, illustrated with this article. It is a farm freezer with separate freezing compartment designed to freeze and keep frozen vegetables, fruits and meats. Its overall size is 94½ in. wide, 28¼ in. deep, 35 in. high; total net capacity, 15 cu. ft.; net capacity quick freezer, 2.5 cu. ft.; total frozen meat capacity, 750 lbs. The refrigerating unit is powered with a ⅓ hp. motor. The cabinet is finished with white high-baked exterior. The interior freezer plate arrangement provides separate compartment for freezing.

New Feature

One of the new features of this model is that the interior is divided into six separate compartments, all of approximately the same size. Seven freezer plates pro-

Model No. 1544 Sanitary Refrigerator Co.

vide primary freezer plate service at both ends of the cabinet and the upright freezer plates also act as separators between the various compartments. Each cover gives access to two of the interior compartments. The quick freezing compartment is the one close to the compressor and the others are frozen storage compartments.

There is much talk nowadays among users about the engineering of postwar home freezers to assist the users in organizing their frozen packages so that it is easy to locate any individual item in the cabinet. This multiple compartment arrangement was designed specifically to answer this problem. It provides the users with a simple effective method for keeping the various food items of one classification together in one of the compartments.

Other Models

Other popular pre-war models include C-1141 and C-841. Model C-1141 was pictured with its owner on the front cover of the April issue of REFRIGERATION SERVICE ENGINEER. The owner, a Wisconsin farm housewife, says she has never regretted having purchased this refrigerator and that she and her family have derived much pleasure and satisfaction from having it in operation in their home; that it is a splendid convenience and time saver, and has been giving excellent service.

This model is 48½ in. wide, 28 in. deep, and 40¾ in. high; total net capacity 10 cu. ft. with 6 cu. ft. frozen storage capacity. It has a sharp freezing compartment, and a storage compartment operating at normal refrigerator temperatures through manual control. The porcelain table top of this model adds useful work space in the kitchen.

Models C-841 and C-1241 are designed more from a utility standpoint, with top lid. They have two compartments, one for fast freezing and one for frozen storage with refrigerating unit in housing outside the main cabinet. Model C-1241 is 61¼ in. wide, 28¼ in. deep, 35⅝ in. high; total net capacity, 11.2 cu. ft. with 2.2 cu. ft. quick freezer capacity and 560 lbs. total frozen meat capacity. Model C-841 is 47¼ in. wide, 28¼ in. deep, 35⅝ in. high with total net capacity of ⅞ cu. ft.; net capacity quick freezer, 2.2 cu. ft.; and total frozen meat capacity of 360 lbs.

Separate Compartment for Freezing

All of the pre-war models except the very small 3 cu. ft. and smaller sizes of this line contain a separate compartment for the faster freezing of foods and this feature will be continued in the Quicfrez models which will be on the market when materials are available.

THE VICTORY QUICK FREEZER

THE Victory quick freezer, made by the Wilson Cabinet Co., Smyrna, Del., departs from the standard type of such units by offering a vertical reach-in type farm freezer. This feature is offered as a distinct departure from the usual type, having the advantage of being much more convenient. Requiring only one-half the floor space of a chest of similar capacity, the reach-in cabinet can be placed in the kitchen.

Looking toward the post-war period, this company has plans already made to build a new factory with approximately 80,000 sq. ft. of floor space to be devoted entirely to the manufacture of farm freezers. Production in the present factory is limited to approximately 250 units per month. With the new factory in production, this number will be stepped up many times. At present the company has a tremendous amount of orders on hand for shipment as soon as possible after the war.

For post-war business, the new sizes will consist of two self-contained models, one of 15 cu. ft. and the other of 25 cu. ft. capacity. Sectional models for remote installation will be manufactured in capacities of 22, 30, 45, 50, 60, 70 and 80 cu. ft. and larger, if desired. The more popular model up to this time has been the 30 cu. ft. size. This unit will store approximately 1,050 lbs. of foods. Practically all of this company's cabinets have been sold to farmers and others who need a large capacity freezer.

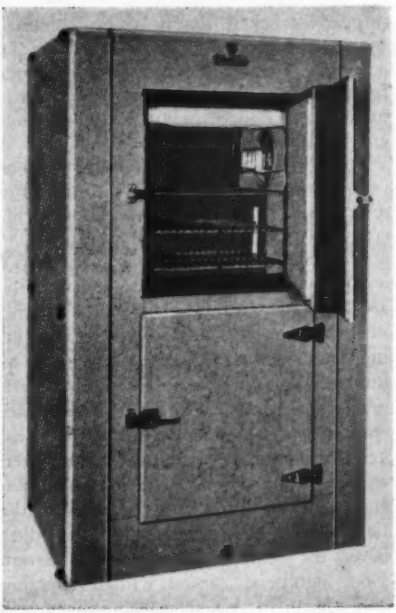
The Wilson dual-action freezing compartment, standard in all models, embodies the fast freezing method. In addition to the quick freezing action of the plates in contact with the food, a sub-zero air blast around the food is supplied by a fan which operates during freezing only. The cabinets are insulated with fiberglas. Chrome plated hardware is of heavy forged brass. Refrigeration is furnished by a Wilson "Uni-Metic" condensing unit. The door is automatically sealed on special double sealed freeze-proof gaskets by a heavy roller type latch adjustable to the exact pressure needed.

Specifications

Specifications of self-contained models are as follows:

Models FR-14 and FR-22 are self-contained reach-in farm freezers, shipped set up complete with all refrigeration equipment installed.

Cabinet: The metal clad cabinet is insulated with four inches of Armstrong Semi-Rigid Fiberglas, sealed against air or moisture penetration, with asphalt and waterproof paper. The cabinet interior and exterior are formed with Paintlok steel sheets with rust resisting electrically processed coating. Exterior is of white enamel finish. Door jambs are sealed with Per-



Victory Quick Freeze, Wilson Cabinet Co.

magum and covered with a special reinforced breakerstrip. Cabinets are equipped with a reach-in sharp freezer door, four-inch insulated double seal infitting type. Forged brass chrome finished ball-bearing hinges and self-closing latch with micrometer sealing adjustment and padlocking device are used on reach-in doors. Non-

freezing door gaskets are used. Each model includes three tiers of adjustable shelves in addition to the freezer plate shelf. Shelf areas, including the freezer plate shelf, are: FR-14, 14.6 sq. ft.; FR-22, 20.9 sq. ft.

Refrigeration equipment: The entire assembly includes patented freezer plates: forced air circulating fan, manually controlled to provide fast freezing; thermostatic expansion valve; heat exchanger; adjustable temperature control; and low temperature Uni-Metic condensing unit.

Specifications of models for remote installations are as follows:

Models FR-30, FR-40, FR-60, FR-80 are sectionally constructed reach-in farm freezers for remote installation. They are shipped knocked down. The sectional construction permits their installation in otherwise inaccessible locations. All refrigeration equipment is shipped with each model and design permits easy erection and installation.

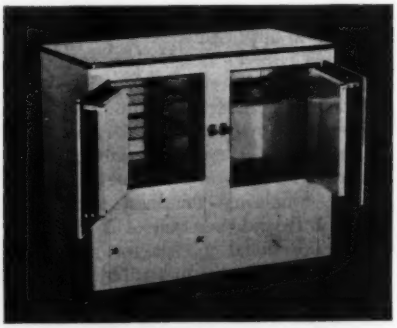
Cabinet sections: The portable freezer cabinet sections are constructed of the same materials as the large Zero walk-in refrigerator. Insulation is six inches of fiberglas sealed with asphalt and waterproof paper on both sides. The interior and exterior are covered with heavy gauge Paintlok steel sheets with processed coating, providing rust-resisting qualities as well as mechanical adhesion for white or dark gray enamel finish. Edges of sections are covered with an asphalt saturated felt gasket which forms a permanent seal between sections when the ⅜-in. tie rods are tightened. Brass chrome plated caps cover the tie rod nuts and stainless steel moulding covers the joints between sections on front. Door jambs are sealed with Permagum and covered with a special reinforced rubber breakerstrip. Front sections are equipped with sharp freezer reach-in doors of the six-inch insulated double seal infitting type. Other door specifications are the same as for self-contained models. Refrigeration equipment is the same as for self-contained units.

The company has issued a booklet on food freezing, available to customers.

THE COLDSPOT UNIT

For freezing and storing foods at home, Sears, Roebuck & Co., prior to the war, had a triple compartment quick-freezing chest known as the David Bradley Coldspot.

This cabinet was built with three food compartments, one for quick freezing, one for storing frozen foods, and the third for normal refrigeration to keep milk, butter and other perishable foods. The cabinet stands 40 in. high, is 28 in. wide, and 48½ in. long. Finish inside and outside is baked-on white enamel. Adjustable shelves are furnished for normal refrigeration compartment. The cabinet was insulated with corkboard and glass cool. Refrigeration supplied by a ¼ hp. unit.



Coldspot Unit, Sears Roebuck

The quick freezing compartment has space for up to 50 lbs. of meat or similar size packages of fruits or vegetables. An adjustable manual control permits raising or lowering temperature in cabinet several degrees to suit requirements. The shipping weight is 510 lbs.

Capacities of the three compartments are as follows: Quick freezing, 1½ cu. ft.; storage compartment, 4⅔ cu. ft.; normal refrigeration compartment 4 cu. ft.

This unit also is made in a chest model in two or three compartments. Larger size has capacity of 17 cu. ft., the cabinet is 82 x 29 x 37 in. high and will hold 850 lbs. of meat.

The smaller, two compartment size has capacity of 10½ cu. ft., cabinet 63 x 29 x 37 in. high and will hold 525 lbs. of meat with ⅓ hp. refrigerating unit.

Draft Status Clarified—More Deferments Possible

AFTER a long period of confusion and apparent uncertainties, Selective Service has finally established a policy under which business men may have a fairly good idea of the draft status of their workers. With the manpower goal of the Army met and that of the Navy virtually achieved, drastic reductions have been made in monthly calls to local draft boards and a more liberal deferment policy made possible.

Summarized briefly, according to report from the Chamber of Commerce of the United States, the situation shapes up as follows:

Age 18-26: virtually all will soon be in uniform.

Age 26-30: men may be taken unless they are essential to an essential job.

Age 30-38: few to be taken; occupational deferment to be granted freely.

It is important that requests for deferment should be filed immediately so that draft boards will have something specific on their records on which to base a deferment for men over 25. The requests must be made on Forms 42-A or 42-B which are available at all draft boards.

Each individual case will be handled on its merits by the local boards guided, generally speaking, by directives or regulations from National headquarters of Selective Service. In view of the changed manpower needs, the following summary of a statement from Selective Service doubtless will be used as a guide for policies of the immediate future.

Status of Draft Ages

Rigid requirements for occupational deferments in the 18-26 age group remain.

For the present, those in the age group of 26-30 who are found necessary to and regularly engaged in war production or in support of the national health safety or interest have the prospect of remaining in civilian life.

For those 30-38, regardless of their physical conditions and for any registrants who are disqualified for general military service or qualified for limited military service only, and who are engaged regularly in and remain in war production or in support of the national health safety or interest, the prospects are that they too will remain in civilian life for an indefinite period.

He was a service engineer in civilian life, Sarge— He says he has to let that stuff loose every night before he can go to sleep

Dependability doesn't happen...
IT'S BUILT INTO EVERY VALVE

USED to regulate pressure at the tail of the evaporator, Model 235 is particularly valuable where two or more evaporators must be operated at different temperatures from a single condensing unit. Maintains evaporator temperature within close limits.

It has a graduated pressure scale, and adjusting range from 10" vacuum to 30 pounds. Furnished complete with shut-off valve for pressure recording gauge, it can be used on flooded, semi-flooded or dry expansion types, in capacities up to ½ ton Freon, or ¾ ton Methyl.

AUTOMATIC PRODUCTS COMPANY

2454 North Thirty-Second Street • Milwaukee 10, Wisconsin
Export Dept.—13 E. 40th St., New York 16, N. Y.

DEPENDABLE
REFRIGERANT VALVES

Stocked and Sold by Progressive Refrigeration Jobbers Everywhere — Recommended and Installed by Leading Refrigeration Service Engineers.

The Question Box

Readers are invited to send their problems pertaining to the servicing of household refrigerators and small commercial refrigerating equipment to "The Question Box."

METHYL CHLORIDE IN GALVANIZED PIPE

QUESTION 603: Relative to the use of methyl chloride, will there be any reaction in using this refrigerant in a coil made of galvanized pipe for use in low temperature? Also, would there be enough zinc present in the pipe to cause any trouble?

ANSWER: I do not believe that you will run into any difficulty as a result of using methyl chloride in pipes that have been hot galvanized even though it is true that zinc forms a considerable part of ordinary galvanize. Galvanized pipes and other containers have been used with methyl chloride for a number of years, and I have never heard of any trouble experienced with it as a result of the reaction of the methyl with the zinc in the galvanized coating.

Ordinarily when we speak of galvanized pipe we refer to pipe that has been electro-galvanized or hot galvanized on the outside of the pipe and not on the inside where the methyl chloride would come into contact with the galvanize coating, and I assume that in the case of the pipe referred to in your letter it is galvanized only on the outside. However even though it may be also inside galvanized, I question if there would be any difficulty encountered.

The only instance that I know of wherein trouble was experienced due to reaction between methyl chloride and zinc was in the case of a dehydrator that was used by one of the Fogel dealers. This dehyrator contained Activated Alumina as the desiccant and the manufacturer of the dehydrator had put in a small handful of zinc chips, the purpose of which was to react with any acid that may have formed in the system and to neutralize the acid. I believe that this is a more or less common practice in sulphur dioxide systems, but it has been so many years since I have had any direct contact with sulphur dioxide that I am not sure as to just how effective or of what value this practice would be even with sulphur dioxide. I do know that in the case above mentioned that the reaction between the methyl chloride and the zinc formed a heavy precipitate very similar to that produced by the reaction between methyl chloride and aluminum although it was not, I believe, accompanied by the production of a flameable gas as is true in the case of reaction between methyl chloride and aluminum.

Incidentally, there is no perceptible reaction between methyl chloride and the standard commercial Activated Alumina for Activated Alumina is aluminum oxide and in this form the aluminum is not attacked by methyl chloride.

CHANGING FROM SO_2 TO METHYL

QUESTION 604: I have an old Frigidaire four-hole cabinet using a ¼ hp. motor and condensing unit and SO_2 refrigerant. Please let me know if I can change this ice cream cabinet to methyl chloride refrigerant by changing the float and cleaning out the whole system before making the change. I intend to use a ⅓ hp. motor which I have, but what I want to know is, will I have sufficient condenser area using the present air cooled condenser? Will the ⅓ hp. motor handle the compressor using the present pulley arrangement?

ANSWER: It is possible to change an ice cream cabinet from SO_2 to methyl chloride, and since you are changing from a ¼ hp. motor to a ⅓ hp. motor, I believe no changes in speed of the compressor will be necessary; however, in increasing your motor size and in changing to methyl chloride, you are increasing the capaiity of the unit and it may be that the condenser area will not be sufficient.

If one assumes that the condenser area was not more than required with SO_2, about ⅓ of the area should be added when making this change to methyl chloride, since you will be increasing the capacity of the system by about ⅓. This can be readily done by purchasing another air cooled condenser of about ⅓ or ½ the size of the one on the machine now, locating it alongside the present condenser and connecting the two in parallel. I think that connecting in parallel

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KELVINATOR

CONDENSING UNITS

SEALED • OPEN

NK For your home—remember Kelvinator Refrigerators, Electric Ranges, Water Heaters, and Home Freezers. . . . They, too, are famous for "trouble-free performance"

will be better than in series, since a series hook-up would give you a rather long passage for the gases to travel before reaching the receiver. The ⅓ hp. motor should take care of the additional capacity provided by the use of methyl chloride.

* * *

HOW TO ARRIVE AT PRESSURE SETTINGS

QUESTION 605: Is there a chart which would show the approximate cutting off and cutting in pressure to get a given temperature for the leading refrigerators where only a thermal expansion valve and low pressure cut-off is used? I have reference to the temperature inside the box or cooler. For example, if I were using F-12, I would have the compressor cut in at 34 lbs. gage pressure and cut out at 18 lbs. gage pressure, which would give approximately 36° F. in the box. Now what I want is something that would explain how and why it would work on these pressures and give an approximate temperature.

ANSWER: We do not have any tables which will give the exact information requested. This is because it is impossible to put such information in the form of a table. There are far too many variables to take into consideration to compile this information in such a manner. The relation between suction pressures and cabinet temperatures will vary in accordance with the design factors in the installation itself; for instance, where the evaporator is small for the size of the cabinet, there will be a larger differential in temperatures between the air in the cabinet and the coil temperature, or perhaps I should say, the refrigerant temperature.

Where the evaporator is over-size, the differential is less; then too, there is a difference between the evaporator temperature or refrigerant temperature in the coil and the suction gas temperature at the compressor, depending on the size of the suction line, there will be more or less pressure drop between the evaporator and the compressor. This, too, will make a difference from one job to another when you try to estimate the suction pressure in relation to the cabinet temperature.

Cabinet temperatures will vary from 10-20° higher temperature than evaporator temperatures. The pressure drop through suction lines should not be more than 2 lbs. and not less than 1 lb. in order to insure proper oil return. There will also be a slight difference in temperature between the outside of the evaporator and the refrigerant on the inside.

Another thing which will affect the temperature differential between air in the cabinet and the refrigerant in the coil is the rapidity of air movement over the coil. A blower type coil will naturally have a lower differential of temperature, while a fin type coil arranged in such a way where poor circulation is obtained over it will have a large differential.

I think, perhaps, one of the best helps for your purpose is a head-back pressure calculator sold through this office which will help you determine what your pressures will be under certain conditions. Also on the back of this calculator is a list of evaporator temperatures for various applications. By determining the evaporator temperature you will require, you can tell by referring to the pressure temperature relation charts what pressure this temperature will produce. Allowing for a 2-lb. pressure drop between the evaporator and the compressor, you can arrive at the suction temperature.

* * *

GRUNOW ERRATIC

QUESTION 606: I am having trouble with a Grunow type "K" and perhaps you can suggest something to help me. This machine was idle for 6 months before I got it. I overhauled the unit, opened and cleaned the compressor and meter, etc. I removed the dehydrator and placed a new one in the line. I found some rusty scale, etc., in the compressor and meter. I also cleaned the cap. tube with a wire until it showed a nice stream when tested. This cap. tube is a small tube, 44" long, inside the 3/16" tubing.

After installing and charging as per Grunow chart (44 oz.), purging and testing for leaks, I had 8"-10" vac. on the highside. It runs 4 to 6 hours nicely and sounds good, then defrosts while running as though there were no circulation. I have opened the meter tube twice and checked the charge three times, but can't find what apparently stops the circulation. After it defrosts and sets for a half hour, it will cycle for several hours and then defrost again. The liquid line remains warm and does not sweat. I thought, possibly, it was undercharged, so I tried an extra 4 oz. of Carrene, but it still did not work. While running and defrosting, there is no sound, hiss or gurgle at the

Sound the Alert!

MANAGEMENT
•
LABOR

—for the 5th War Loan drive during June and July. The need for the 5th War Loan is immediate, crucial. For impending events may make the 5th the supreme financial effort of the war.

The U. S. Treasury has set the overall goal at $16,000,000,000—$6,000,000,000 from individuals alone. This is the biggest sum ever asked of the people—*and it must be raised.*

That's why the U. S. Treasury asks Management and Labor to sit down together and organize—NOW!

In planning your quota campaign, work in close cooperation with the Chairman of your War Finance Committee. Everything is set to make the 5th War Loan drive a huge success—with your help!

Here's the Quota Plan:

1. Plant quotas are to be established on the basis of an *average* $100 *cash* (not maturity value) purchase per employee.
2. Regular Payroll Savings deductions made during the drive accounting period will be credited toward the plant quota.
3. 90% of the employees are expected to contribute toward raising the cash quota by buying extra 5th War Loan Bonds: 1—Outright by cash. 2—By extra installment deductions. 3—By extra installment deductions plus cash.

Example: JOHN DOE Mfg. Co.—1,000 Employees

1,000 employees x $100 - $100,000 Cash Quota

1,000 employees Regular Payroll deductions during the eight weekly payroll Accounting Periods of June and July. — 30,000 — $70,000 (to be raised by sales of extra Bonds to at least 900 employees)

ORGANIZE • SOLICIT • DELIVER

5TH WAR LOAN

The Treasury Department acknowledges with appreciation the publication of this message by THE REFRIGERATION SERVICE ENGINEER

This is an official U. S. Treasury advertisement—prepared under the auspices of Treasury Department and War Advertising Council.

evaporator. What could you suggest as a possible cause for this condition? Any help will be greatly appreciated.

ANSWER: The description you have given me of the Grunow type "K" unit leads me to believe your trouble is due to either moisture freezing in the metering tube, or to oil congealing at that point.

Apparently the system operates satisfactorily otherwise and about the only place where a temporary stoppage could occur would be in the metering tube, and since that clears itself after warming up, it would seem to indicate that there is moisture or congealing oil.

SERVICE COUNCIL ESTABLISHES TRAINING SCHOOLS

THE National Refrigeration Service Council is continuing its program announced previously to interest more communities in training of service men. A recent bulletin issued by W. R. Kromer, National Program Director, states that plans are being formulated for a drive for local councils in communities where activity is not evident. Bulletins have been issued also giving the status of the work accomplished to date.

Local councils and training schools have been established at about 40 cities with a total of about 1,108 men enrolled in the training courses.

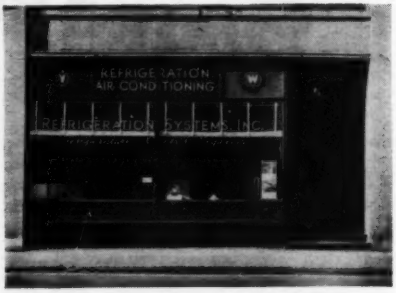
CEILING VIOLATIONS CHARGED

A CHARGE of violations of the ceiling price on used mechanical refrigerators has been filed in Federal Court against Buster Ballentine of Dyersburg, Tenn., by the OPA. Ballentine is charged with selling five different persons refrigerators for prices ranging from $155 to $260, all of which were "greatly in excess of the proper ceilings." All the sales on which charges were based were made in Dyersburg.

A repair and sales office for commercial refrigeration has been opened in Lexington, Mo., by Warhurst & Cloyd, refrigeration engineers, now operating at West Des Moines, Ia. This concern builds and installs complete locker systems and services all kinds of commercial refrigeration, particularly for packing plants and other establishments requiring low temperature systems.

CHICAGO DISTRIBUTOR MOVES INTO LARGER QUARTERS

TO PROVIDE more adequate facilities for post-war operation, Refrigeration Systems Inc., distributors of Westinghouse commercial refrigeration and air conditioning for the Chicago area, has moved into larger quarters at 646 West Washington Boulevard.



Front of New Quarters Occupied by Refrigeration Systems, Inc., Chicago, Ill.

The present building, located in the heart of Chicago's "machinery row," has been completely remodeled. The interior has been functionally arranged to make possible streamlined shop operation. The property, 30 by 150 feet, including a basement level, has a floor area of 13,500 square feet. The shop area includes a model stock room, an individual drafting room, a machine shop, and specially ventilated gas-filling and spray booths.

Organized three and a half years ago by Joseph H. Lazar and Alfred Kaufmann, the firm has experienced a rapid growth in the fields of commercial and industrial refrigeration. Mr. Lazar had previously been associated with the Westinghouse Electric Supply Company for eight years as Commercial Refrigeration Sales Engineer, and Mr. Kaufmann had for 15 years been closely identified with retail store management in the promotion of one of the largest department store chains in the Middle West.

Martin Krawczyk, manager, Harry Alter Co., New York branch, has legally changed his name to Martin E. Kent. Mr. Kent formerly managed the Newark, New Jersey, branch office.

4 ways to increase the efficiency of your line of soda fountains

OIL SEPARATORS

These Temprite suggestions will materially assist your engineers in designing new soda fountain equipment because each unit listed here performs a valuable function in obtaining "maximum operating efficiency". Temprite's Oilrite Oil Separators will keep oil out of the lowside evaporator and coils thereby resulting in 4 to 8 degrees lower temperatures without an increase in operating time.

TWO TEMPERATURE VALVES

Temprite's Two-Temperature Valves are designed to maintain constant temperatures at all times regardless of lower temperatures existing in other parts of the system. These valves are ruggedly constructed of corrosion resistant metals, extremely sensitive in operation and have a wide range of adjustment.

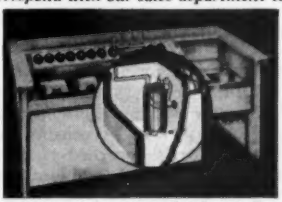
EQUALIZER (SURGE) TANKS

Temprite Equalizer Tanks are used to overcome short cycling of the condensing unit caused by intermittent operation of the fountain coolers. These Equalizer Tanks act as a suction gas storage tank between the fountain lowsides and the condensing unit.

INSTANTANEOUS BEVERAGE COOLERS

Temprite Instantaneous Beverage Coolers are unique in design because, unlike other beverage cooling units, the water coils of the Temprite are submerged directly in the liquid refrigerant. In this way water is cooled instantaneously, for the heat from the water being cooled passes directly into the main body of the refrigerant. The small size and large capacity of the Temprite unit is an added advantage because it permits a very compact and close coupled installation. These Temprite Instantaneous Beverage Coolers are widely used by soda fountain manufacturers who recognize the many superior features of these units.

To better acquaint your engineering staff with these Temprite Products, and how they can be applied to your particular units, we invite you to correspond with our sales department today.



Installation of Temprite Instantaneous Soda Fountain Water Cooler

TEMPRITE PRODUCTS CORP.

Originators of Instantaneous Liquid Cooling Devices

45 PIQUETTE AVENUE • • • DETROIT, MICHIGAN

National Refrigeration Service Council

THE Price and Wage Division of the National Refrigeration Service Council, Emerson Brandt, Coordinator, has issued a Bulletin on wage rates and adjustments and price adjustments.

Wage rates it states, have an important bearing on the availability of manpower to meet the critical situation which will occur in refrigerator repair service this summer because of the few men remaining to carry on the work. Therefore wage rates must be fixed at levels which will be:

1. Satisfactory to present employees so that they will be kept on the job and work at best efficiency;
2. Sufficient to attract a reasonable number of experienced men back to refrigeration repair work;
3. Sufficient to procure competent men who can be trained for future work in the industry.

The reasons for this course are apparent. Further separation of workers will stop the work in many locations. Experienced former service men should be encouraged to return to the industry at the earliest possible moment. The operations of the industry require special skills and ability. The men brought into the training program must have this ability and be capable of developing the required skills in a reasonable time. Otherwise their training in refrigeration service work will not benefit them and will be a distinct hindrance to the program as a whole.

Wage Adjustments

Those shops or agencies employing less than eight men are permitted under National War Labor Board regulations to make such wage increases as they consider necessary. This matter is governed by General Order 4, N.W.L.B. which contains certain stipulations to be considered in connection with contemplated increases. Secure a copy from the nearest office of N.W.L.B. or the Wage and Hour Division.

Employers of more than eight persons may not increase wage rates without N.W.L.B. approval. Applications for such approval should be made on N.W.L.B. Form 10 which is filed with the nearest office of the Wage and Hour Division of the U. S. Department of Labor. Attach to the form a letter calling attention to the urgency of the situation and request prompt handling in accordance with the Refrigeration Repair Industry Memorandum of Dec. 1, 1943 by Lloyd K. Garrison, Executive Director of N.W.L.B.

Price Adjustments

In order that the service agency may avoid losses due to increases made in wage rates the OPA has set up methods to increase charges to the customer. The method used depends on the type of operation: shops employing more than eight persons, shops employing less than eight persons, owner-operated shops which do not employ mechanics. All of them are detailed in OPA Service Trades Bulletin No. 9 which includes a form for calculating the new maximum prices. (Copy is being sent to you from National Headquarters.)

The OPA regulations (S.S.R.-22) permit shops employing less than eight persons to increase service charges in amount corresponding to wage increases, thirty days after such wage increases are made. Those employing more than eight may find some relief for too low prices under this regulation. They may also follow Supp. Service Reg. 21 to cover added costs due to overtime wage rates. As final recourse they may apply to OPT for increase in their price schedules. The application is made on OPA Form 6817-1 which is filed with a District, State or Regional Office of OPA.

General

The information in this bulletin is given in summary form. It is suggested that each council secure copies of the following regulations and forms for inspection and discussion by the members at an early meeting.

National War Labor Board: General Order 4, Amended; General Order 31, Amended; Form 10.

Office of Price Administration: Service Trades Bulletin No. 9; Supp. Service Reg. 21; Supp. Service Reg. 22; Max. Price Reg. No. 165; Supp. Order 28; Procedural Reg. 1; Form 6817-1.

(Continued on page 57)

Henry Diaphragm Relief Valve

Instantaneous Pressure Relief with Fast and Positive Reseating

Design of this relief valve is unique in that it incorporates a diaphragm construction with an unusual seating arrangement. The result is an opening and closing snap-action movement. Large surface area of the pressure actuated diaphragm causes instantaneous relief as compared to gradual opening in conventional spring loaded relief valves. When the pressure in a system reaches the relief point, wire drawing, which may ruin a valve seat, can not take place because there is no slow movement of the valve seat disc in the Henry Diaphragm Relief Valve.

This valve is recommended for protection to a system containing a large charge of freon or methyl chloride refrigerant. It may be employed either for relieving high side or low side to atmosphere. It can also be installed so as to relieve from high to low side of system. It meets the requirements of all existing safety codes. Due to its acknowledged efficiency through dependable performance under all conditions of service, the Henry Diaphragm Relief Valve is today widely used in refrigeration and air conditioning installations of the Army, Navy and Maritime Commission.

The Henry Diaphragm Relief Valve is available in ½" F.P.T., ¾" F.P.T., ⅜" O.D. and ⅞" O.D. Solder connections and at pressures ranging from 90 pounds to 300 pounds per square inch. Each valve is individually adjusted, set at pressures ordered and marked with its rated free air passage capacity per minute. Locking device prevents tampering with pressure setting or changes in setting due to vibration.

FOR FREON and METHYL CHLORIDE REFRIGERANTS

Type 542. With solder connections. Extended tube sockets at inlet and outlet ports prevent transfer of installation heat to internal parts.

Type 541. With female pipe thread connections.

Henry Products are Sold by Leading Jobbers Everywhere

HENRY VALVE CO.

3260 West Grand Avenue • Chicago 51, Illinois

EXPORT DEPARTMENT, 13 EAST 40th ST., NEW YORK, N. Y.

PACKLESS AND PACKED VALVES • STRAINERS • DRYERS FOR REFRIGERATION AND AIR-CONDITIONING AMMONIA VALVES • FORGED STEEL VALVES AND FITTINGS FOR OIL, STEAM AND OTHER FLUIDS

Refrigeration Service Engineers Society

Official Announcements of the activities of the International Society and Local Chapters appear in this department as well as articles pertaining to the educational work of the Society.

THE OBJECTS OF THE SOCIETY

To further the education and elevation of its members in the art and science of refrigeration engineering; for the reading and discussion of appropriate papers and lectures; the preparation and distribution among the membership of useful and practical information concerning the design, construction, operation and servicing of refrigerating machinery.

INTERNATIONAL HEADQUARTERS: 433-435 North Waller Ave., CHICAGO 44, ILL.

R.S.E.S. Chapter Notes

ATLANTA CHAPTER

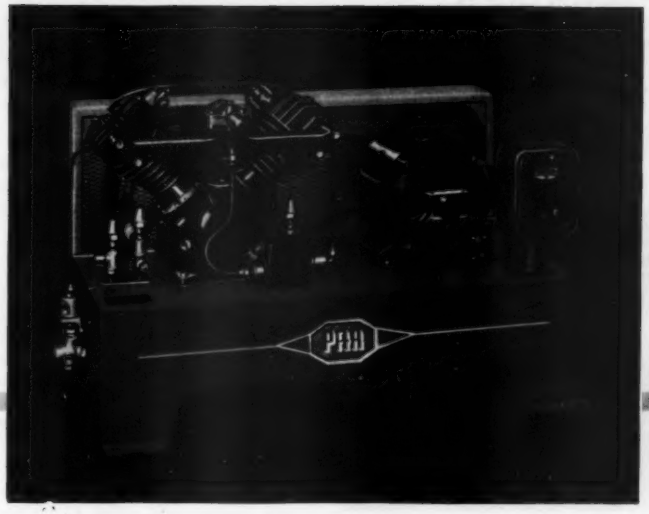
Atlanta, Ga., March 13—The March meeting was held at the Ellen Rice Tea Room where a turkey dinner was served. Hoke Zuber of W. D. Alexander Co. gave a talk on General Electric refrigeration compressors and parts. He also explained the service from the service man's viewpoint.

The May meeting was held following dinner at the Imperial Coffee Shop. The guest speaker was Bert Kaple, Atlanta representative of The Copeland Company, who gave a most interesting talk on manufacturers' problems as well as service problems. Joe Parker gave an interesting report on the manufacturers' and jobbers' meeting held in Chicago the previous month. Bill Rapp from the Mueller Brass Co. gave a talk on the training, employment and problems of returning soldiers.

KANSAS CITY CHAPTER

Kansas City, Mo., April 5—Following the business session, the meeting was turned over to Mr. Schreiber, Chairman of the educational committee, who discussed the operation and purpose of the compressor and the method of finding the capacity of compressors. A very interesting discussion followed. Three visitors were present.

View of ninth annual dinner Kansas City Chapter on Roof Garden of Ambassador Hotel, March 18



Par Model HW-50

- A brute for heavy work on locker plant, ice cream plant and super market installations.
- 5 H.P. 4 cylinder water cooled unit with fast pull down and high capacity.
- For economical operation this large capacity, slow speed unit can't be beat.

- *Write for illustrated brochure of details.*
- *BY COMPARISON—YOU'LL BUY PAR.*

PAR Division

LYNCH MANUFACTURING CORPORATION
Defiance, Ohio, U.S.A.

TRENTON CHAPTER

Trenton, N. J., May 17—The main feature of this meeting was a demonstration of a Cold Spot unit by Mr. Dafter. He took it apart, assembled it and then pointed out the various things to look for when repairing this unit. The group picture reproduced below gives an idea of the interest shown by the members in this demonstration.

Members of Trenton chapter watch demonstration of Coldspot unit

It was decided that, except for a picnic to be held August 6, there would be no more meetings until September.

TWIN CITIES CHAPTER

Minneapolis and St. Paul, Minn., May 2—Reporting for the entertainment committee Ubert Hansen announced a smoker to be held at the Arcanium, May 26. Two visitors were introduced, Fred Maurer, Mora, Minn., and George Beardsley, formerly of Montevideo, Minn., now serving with the Merchant Marines. The application of R. Tisher was accepted as associate member and four new active members were accepted.

President McCafferty reported that a meeting had been arranged with the police department to discuss the downtown parking problem. Bulletin 34 on the subject of methyl chloride and Freon refrigerants was read by President McCafferty and discussed.

DAYTON CHAPTER

Dayton, Ohio, May 11—The meeting was held at the Allied Parts plant with a fair attendance. Arrangements were made for the second picnic and the educational part of the program consisted of a discussion of current service problems. Two new members were accepted: Charles L. Ott of Dayton and Harold C. Denise, Piqua, Ohio.

CORN BELT CHAPTER

Bloomington, Ill., May 17—The seventeenth meeting of the Chapter was held at the offices of the Manufactured Ice Co. Two new applicants, Ralp Porter and Roy Hunter were accepted as members. It was decided to discontinue meetings during the summer until September 20. Following the business meeting, Martin Clemm conducted a tour through the plant of the Manufactured Ice Co. which proved to be very interesting and educational.

LONE STAR CHAPTER

Fort Worth, Tex., May 4—This was a special meeting held to discuss plans for a family picnic to be given at Lake Worth, May 25. The Chapter was fortunate to have present a very good friend, W. L. McCullouch of Kelvinator Corp., Dallas, Texas. Mr. McCullouch spoke on servicing sealed units, domestic and commercial.

SAN DIEGO CHAPTER

San Diego, Calif., May 11—After a short business session, the entertainment committee presented a sketch entitled "How Not to Make a Service Call." The scene was in the kitchen of Mrs. Plushbottom's home. Two service men appeared and did everything they shouldn't do, such as: spilling oil on the floor, spreading tools and parts around, eating food and drinking beer from the refrigerator and getting fresh with the housewife. After all this, they failed to repair the refrigerator and Mrs. Plushbottom made her own repairs. The little farce was well received and the committee was given well deserved applause.

INTERPROVINCIAL ASSOCIATION

Toronto, Canada, March 8—At this meeting, K. Wood, Chairman of the Advisory Committee reported on the work his committee had been doing in connection with deferment for service engineers. He outlined a conference held with Mr. Mackenzie of the Wartime Prices and Trade Board and mentioned circular letters which had been sent out containing the full procedure to be taken by service engineers where deferment was necessary. A. Doan, Chairman of the Standards Committee, reported that in conference with J. N. Briggs, Director of the Department of Labour, Toronto, he had learned that the present refrigeration code will not be enforced until after the cessation of hostilities; also that the department favors licensing refrigeration service men.

both mean

PEAK PERFORMANCE

Sporlan CONTROLLED PERFORMANCE valves are the *only* thermostatic expansion valves with elements specifically charged to fit the application of the valve. These *selective charges* (G-K-U-Z-O-L-C) are designed to give the best operating characteristics for each type of installation. Only by using SPORLAN valves can you be assured of PEAK Performance on EVERY installation.

Sporlan manufactures Solenoid Valves . . . Magnetic Pilot Controls . . . Modulating Pilot Controls . . . Refrigerant Distributors and the only Thermostatic Expansion Valves with Selective Charges. If your post war plans include refrigeration or air-conditioning write SPORLAN immediately.

SPORLAN

SPOEHRER-LANGE CO.
3723 COMMONWEALTH AVE., ST. LOUIS 17, MO.

★ ★ ★ ★ VALVES

SERVEL COOPERATIVE SELLING

"Servel Equipped" on your fixtures means high-grade refrigeration. It also means customer satisfaction and profitable sales operations. For Servel, in selling condensing units to dealers, distributors and manufacturers, encourages full cooperation among these groups.

SERVEL, Inc. Electric Refrigeration and Air Conditioning Division Evansville 20, Indiana

May 7—A meeting of the executives of the Association was held at the King Edward Hotel. K. Wood introduced a plan to train men for service work. He told of a discussion he had had with a government official on this subject. Following the discussion, Mr. Wood was named Chairman of a committee to report at the next meeting on a manpower and training program.

TOLEDO CHAPTER

Toledo, Ohio, May 10—The oustanding activity of this meeting was the initiation of 12 new members, after which a buffet luncheon was served. The annual picnic question was raised and discussed but no decision was made as to location and date.

WORCESTER CHAPTER

Worcester, Mass., May 16—At this meeting, a full slate of officers was elected for the ensuing year as follows: *President,* Robert N. Davis; *First Vice-President,* Robert F. Lyons; *Second Vice-President,* Arthur J. Osper; *Secretary-Treasurer,* John J. Brosnan; *Sergeant-at-Arms,* Lester F. Atchue; *Board of Directors,* H. Pierce Goodney, Wilrose J. Hanson and Harry E. Manchester.

MOTOR CITY CHAPTER

Flint, Mich.—This Chapter has started a series of talks by all members regarding their own individual types of work on machines on which they specialize. The first speakers were Clare Babcock and Bert Clark. Mr. Babcock talked on hardening cabinets designed by Mills and Mr. Clark on oddities that he has encountered. This made a very interesting session and it is planned to carry it on until all members have had a chance to talk on their own type of work.

COLUMBUS CHAPTER

Columbus, Ohio, May 10—This was the last meeting of the season. The Chapter had the good fortune of hearing Stewart Zoellner of the Frigidaire Corporation, who reviewed various refrigeration problems illustrated with slides. Joe Deptner, Frigidaire Factory Engineer, assisted Mr. Zoellner. Regular monthy meetings of the Chapter will be resumed in the fall.

MILE HIGH CHAPTER

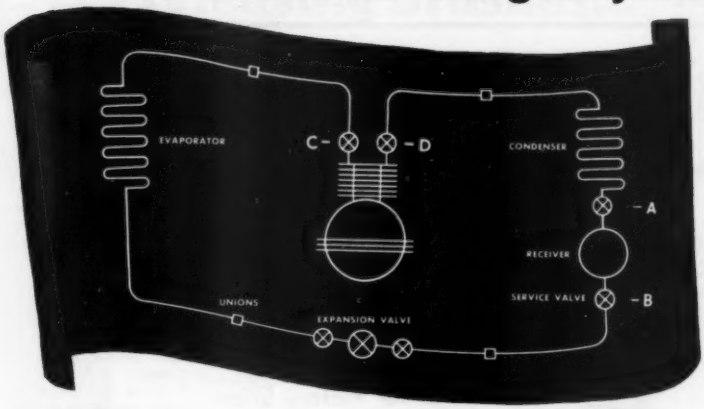
Denver, Colo., May 8—The annual election of officers was discussed and it was decided to elect a nominating committee with instructions to recommend at least two men for each office. The election will be held by mail, the nominating committee giving their recommendations to the Secretary and he to prepare and mail the ballots in time for them to be returned by June 12, the next regular meeting. Entertainment was furnished by a three-piece orchestra, consisting of piano, saxophone and steel guitar which rendered old and popular melodies. Refreshments were served with the music.

MONUMENTAL CHAPTER

Baltimore, Md., April 12—One of the finest attendance the Chapter has ever reported turned out to hear J. M. Lambert of the York Corp. speak on food freezing and storage of frozen foods. Every phase of food freezing was taken up by Mr. Lambert and of the many questions asked him relative to the subject, all were answered to the entire satisfaction of those present. Mr. Sheppard of the War Manpower Commission also spoke on the subject of training new men for the refrigeration service apprenticeship.

(Continued on page 50)

MAINTENANCE TIPS
for "FREON-12" charged Systems



NO. 2

SHUTTING DOWN SYSTEMS

Check these important points on shutting down "Freon-12" charged systems during periods when operation of the equipment is not required. These tips will help you conserve "Freon-12"— save you time, trouble and expense.

1. Determine the capacity of the receiver. (See diagram.) Make certain it will hold the entire charge of "Freon-12," and still have a void or gas space which is 10% of the receiver's volume. This extra space is required to allow for expansion of the liquid refrigerant at higher temperatures, and eliminates the possibility of bursting the receiver because of hydrostatic pressure.

2. When the receiver is not of adequate capacity, close valve "B," shown above. Operate the compressor to evaporate all liquid in the line between valve "B" and valve "C." "Freon-12" then condenses, flows into receiver. Reduce the back pressure to from 2 to 5 pounds gauge reading, then close valve "A."

3. When the receiver is not of adequate capacity, close valves "A," "B," "C" and "D" to isolate the refrigerant in separate sections of the system.

4. Test all valves to guard against leaks during the shut-down period. Send for free reprints of our previous advertisement in this series explaining "Leak Detection and Correction."

Pass this page along to others in your business. Write today for free reprints of this advertisement or for any further information we can supply which may be of help. Address: *Kinetic Chemicals, Inc., 10th and Market Streets, Wilmington 98, Del.*

KINETIC

FREON

safe refrigerants

"Freon" is Kinetic's registered trade mark for its fluorine refrigerants.

★

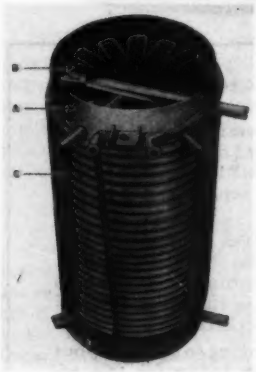
BUY A WAR BOND EVERY MONTH

New and Improved Appliances

Information contained in this department is furnished by the manufacturer of the article described and is not to be construed as the opinion of the Editor.

Strato-Flo Water Coolers

ANNOUNCEMENT of Strata-Flo water coolers, designed to eliminate warm-up and "wet" systems (water in refrigerant lines), and featuring a simplified method of control, is made by Drayer & Hanson, Inc., manufacturers of heat exchange equipment.



Cooling Tank Diagram Drayer-Hanson Strato-Flo Water Cooler

While based on proven cooling principles, Strata-Flo coolers are entirely new in design. The shell of the storage tank "A" is between vertical interior fins "B" and external refrigerant coil "C." Continuous cooling action on the entire body of water in the storage tank is transmitted from the refrigerant coil through the shell to these fins.

The fins prevent swirling action and confine incoming warm water supply to upper levels, eliminating mixture with water already cooled in the lower portion of the tank and thus minimizing warm-up. Since refrigerant can never come in direct contact with water, or vice-versa, danger of wet systems is eliminated and control is non-critical. This permits use of the simplest types of controls, consisting of an automatic expansion valve and external adjustable thermostatic switch.

New Refrigeration Unit for Victory Ships

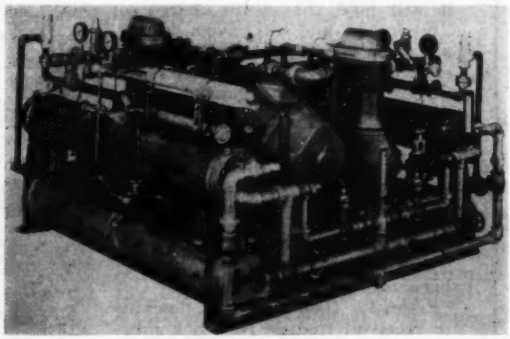
NEARLY 1600 square feet of vital cargo area and more than 16,000 man-hours of installation time will be saved on 133 of the nation's new Victory ships by a compact new packaged refrigeration plant, a development of the York Corporation engineering laboratories in collaboration with U. S. naval architects.

By conserving weight, space and vital material through the compact design of the new unit, ample refrigerated stores of fresh foods will be made available even on extended voyages. Outstanding feature of the packaged plants is the combination of twin refrigeration compressors, receivers, condensers and all refrigerator auxiliaries which by means of cross connections can be operated separately on both high and low temperature rooms. In emergencies, either compressor can be connected to carry both high and low temperatures simultaneously.

Refrigerant receivers for the plants form an integral structural part of the base thus increasing the rigidity of framework at the minimum of weight. Built in the form of a rectangle, all piping and valves are located for easy accessibility to all parts. In addition to their application for ship stores refrigeration on the Victory ships, York is now building similar packaged units for other type vessels.

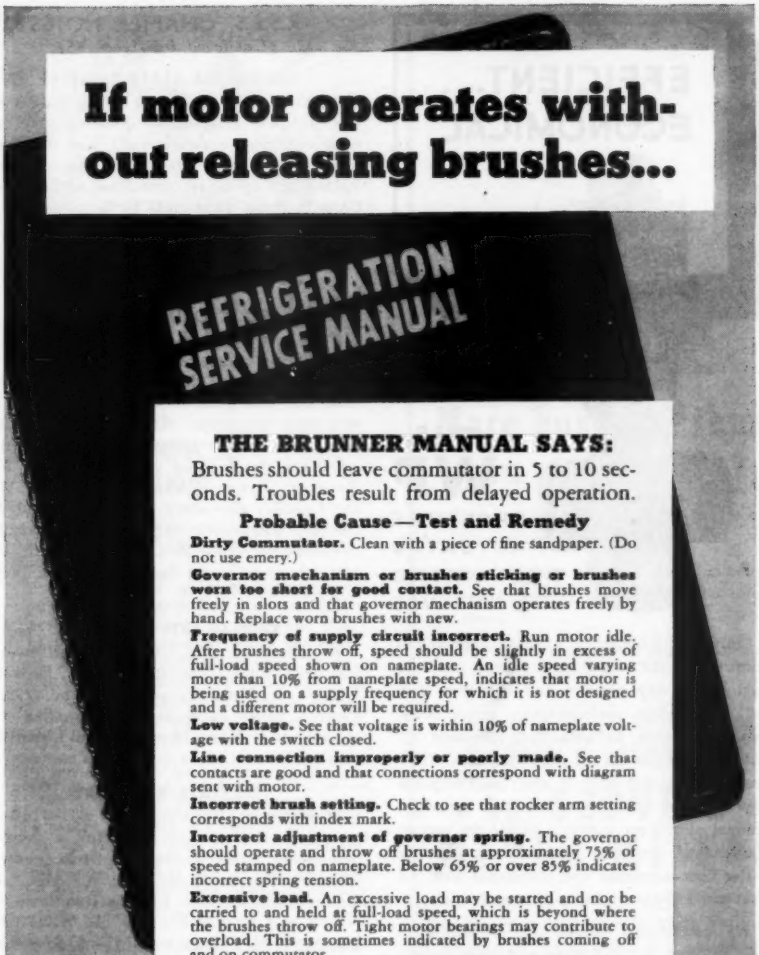
With the exception of piping connections to cooling coils and water supply, the new unitary apparatus is ready to use when shipped, saving valuable assembly time. Total weight of the units is 3804 pounds with dimensions fixed at 70.8 inches long, 67.5 inches wide and 41.5 inches high. The unit mounts two 2-cylinder York Balanseal refrigeration compressors with a combined refrigerating capacity of five tons. Compressors are driven

(Continued on page 56)



New York Refrigeration Unit for Victory Ships

If motor operates without releasing brushes...



THE BRUNNER MANUAL SAYS:

Brushes should leave commutator in 5 to 10 seconds. Troubles result from delayed operation.

Probable Cause—Test and Remedy

Dirty Commutator. Clean with a piece of fine sandpaper. (Do not use emery.)

Governor mechanism or brushes sticking or brushes worn too short for good contact. See that brushes move freely in slots and that governor mechanism operates freely by hand. Replace worn brushes with new.

Frequency of supply circuit incorrect. Run motor idle. After brushes throw off, speed should be slightly in excess of full-load speed shown on nameplate. An idle speed varying more than 10% from nameplate speed, indicates that motor is being used on a supply frequency for which it is not designed and a different motor will be required.

Low voltage. See that voltage is within 10% of nameplate voltage with the switch closed.

Line connection improperly or poorly made. See that contacts are good and that connections correspond with diagram sent with motor.

Incorrect brush setting. Check to see that rocker arm setting corresponds with index mark.

Incorrect adjustment of governor spring. The governor should operate and throw off brushes at approximately 75% of speed stamped on nameplate. Below 65% or over 85% indicates incorrect spring tension.

Excessive load. An excessive load may be started and not be carried to and held at full-load speed, which is beyond where the brushes throw off. Tight motor bearings may contribute to overload. This is sometimes indicated by brushes coming off and on commutator.

Shorted stator. Best check is separate wattmeter reading on each of two halves of stator winding. Sometimes shorted coil may be located by fact that one coil feels much hotter than other. Very great increase over normal in magnetic noise may also indicate shorted stator.

BRUNNER

Servicing of motors is but one item in your job of securing more efficient performance and longer life from the refrigeration units you are called upon to maintain. Your Brunner Manual can help you with ALL *items. If you don't have a copy, we'll be glad to furnish one for $2.50. Write to:*

Brunner Manufacturing Company, Utica, New York, U. S. A.

Individually tested for efficient, economical operation. WP regulating valves may be mounted in any position and will give lasting, trouble-free performance. Brass body, two ply power bellows and corrosion resistant materials for all internal parts. They are designed not only to start and stop the flow of water but also to feed the economic amount of cooling water to secure the proper condensing pressure without waste. The water flow increases and decreases with the rise and fall of actuating pressure.

WP regulating valves are available in ⅜", ½" and ¾" FPT sizes and other valves of other types are available in sizes ranging from ⅜" to 2" FPT.

Write for a copy of our latest catalog.

Electrimatic

2100 INDIANA AVENUE

CHICAGO 16, ILL.

R.S.E.S. CHAPTER NOTES

(Continued from page 46)

MAGNOLIA STATE CHAPTER

Jackson, Miss., April 26—Following a routine business session, the question of a code with licensing arrangements was discussed. The question was referred to the code committee and advisory committee with instructions to draw up a code to be submitted on approval.

Ladies Auxiliary

ROCKFORD AUXILIARY

Rockford, Ill., May 15—The regular monthly meeting was held at the home of the President, Mrs. Dorothy Shipman, at which time she was presented with a gift for her new baby daughter. After the regular business meeting, the following were elected to serve for the ensuing year: *President,* Mrs. Raymond Kruse; *Vice-President,* Mrs. Walter Larsen; *Secretary,* Mrs. R. Clyde McCarthy; *Treasurer,* Mrs. Leslie L. Sturch; *Sergeant-at-Arms,* Mrs. Arthur Overman. A social hour followed the meeting after which luncheon was served.

KANSAS CITY AUXILIARY

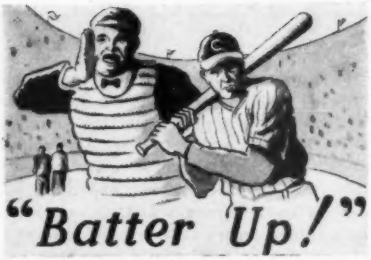
Kansas City, Mo., April 5—The meeting was held at the home of Mrs. J. P. DeWilde. Mrs. C. L. Hataway prepared the refreshments. Coffee and delicious cookies were served and Mrs. H. L. Ward furnished candy almonds.

TRI-STATE AUXILIARY

Huntington, W. Va., April 25—This was a reorganization meeting after a year of inactivity. The following officers were elected: *President,* Mrs. A. W. Albertson; *Vice-President,* Mrs. Claude Brunton; *Secretary and Treasurer,* Mrs. A. W. Gruber; *Directors,* Mrs. Joe Campbell and Mrs. Donald Young. Ways and means of making the meetings more interesting were discussed. At the close of the meeting, a social hour was enjoyed.

TWIN CITIES AUXILIARY

Minneapolis, and St. Paul, Minn.—The May meeting was held at the Rainbow Cafe following a delicious luncheon and social afternoon. Eleven members were present to enjoy bunco. No business was transacted. At the April meeting the question of dues was discussed and it was decided that the first Tuesday of the current year would be the deadline for all dues.



It takes more than wishful thinking to connect with one in the "big time." There's where the real hitters show their stuff—bring to bear months and years of painstaking training. Eyes, muscles, nerves—all perfectly trained to coordinate on that next pitch.

U.E.I. BALANCED TRAINING

is for men who want to smash out a homer in the refrigeration and air conditioning field.

It is a course of sound, practical home-study instruction balanced with actual shop work; a program that helps prepare men to make the most of the opportunities offered in refrigeration and air conditioning. It's the kind of training that helps make league-leaders out of "rookies," as well as old-time service engineers.

Founded in 1927, U.E.I. has been training men in refrigeration SEVENTEEN consecutive years! There is nothing experimental or unproved in the U.E.I. Balanced Training method of helping ambitious men get farther faster. It's worked for years; it's working now.

Stop to think! Wouldn't this training help YOU in your present job—or the one you're aiming at? Then get busy and MAIL the COUPON below for FREE information. Don't wait until tomorrow—do it today, NOW.

MAIL THIS COUPON TODAY

FREE FACTS

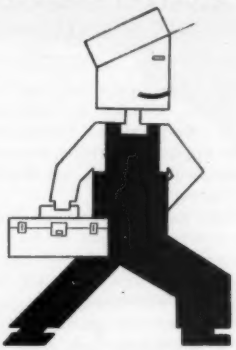
UTILITIES *Engineering Institute*
1314 W. Belden Ave.
Chicago 14, Ill.

Please give me more information about Refrigeration and Air Conditioning Training, as promised in your Refrigeration Service Engineer June, 1944 ad.

Name .....

Address .....

City ..... State .....



More business than you can handle?

—Not enough hours in the day to do all the work you have!

—Every minute must be made to count—unnecessary delays must be minimized.

—With the busy service season started, don't run short on

HERVEEN

to SERVICE METER-MISERS

See that a drum is readily available in the shop and service truck for any emergency when you are called for Frigidaire Meter-Miser service.

Remember too it is good business for you in the future when you have a satisfied customer.

Depend on Herveen as thousands of service men are now doing. Get it from your jobber. If he doesn't stock it, write direct.

MODERN GAS CO., Inc.
Manufacturers and Refiners
1084 Bedford Ave., Brooklyn 5, N.Y.

THREE ASSISTANT GENERAL SALES MANAGERS FOR KELVINATOR

IN a move toward the postwar expansion of home office operations and executive responsibilities, Charles T. Lawson, Nash-Kelvinator vice-president in charge of the Kelvinator appliance division, has announced the appointment of three assistant general sales managers.

"Although many of our executives are spending a major portion of their time on our war production, it is not too early to start taking the steps necessary to set up the type of an organization we must have to handle the greatly increased volume of business which we expect to do in the years following the war," the announcement stated.

"This move is made with that objective in view. From these appointments will develop highly specialized and completely contained departments which will enable us to broaden and intensify our various sales activities and, in doing so, better serve both our wholesale and retail selling organizations. We look for several years of peak refrigerator volume, a rapidly expanding market for electric ranges and an opportunity to obtain a larger share of the market for commercial as well as new household products."

The appointments as announced by Mr. Lawson cover three important sales activities of the Kelvinator Division of the Company.

D. A. PACKARD
Household Products Merchandising Division

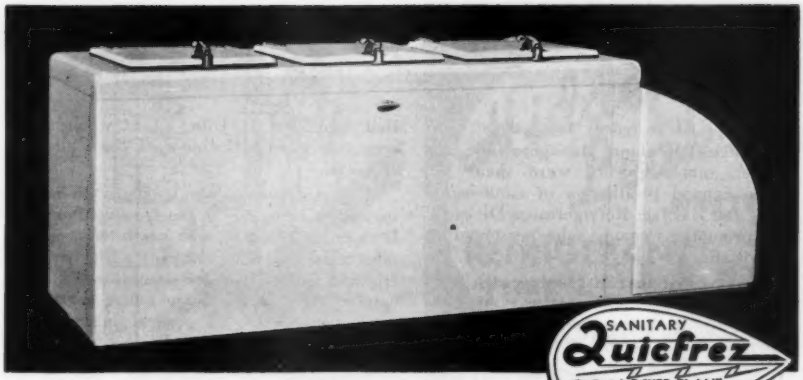
D. A. PACKARD is named assistant general sales manager and will be directly responsible for sales and merchandising activities on all Kelvinator household products. Mr. Packard's long experience in working closely with appliance retail outlets of every type forms an excellent background for the new activities to come under his direction in his new post. He has been with Kelvinator since 1940 and has served as Eastern Sales Manager for the past few years. His new duties will include direct supervision of all merchandising activities including franchising, sales strategy and sales training plans.

T. A. FARRELL
Sales Operations Division

T. A. FARRELL has been named assistant general sales manager in charge of Operations including supervision of Eastern, Western and Pacific Coast regional managers, as well as business operations in the home office. With Kelvinator since 1939, Mr. Farrell, for the past 2½ years, has served as manager of the Government Contract Division of the Corporation and for the present will continue to serve in this capacity in addition to his new assignment. Prior to the war, he was manager of the Commercial Parts and Service Division and previously had been Eastern Sales Manager of the Household Division.

E. R. LEGG
Home Office Commercial Sales and Contract Division

E. R. LEGG has been appointed assistant general sales manager in charge of the Commercial and Contract Division. With Kelvinator since 1927, Mr. Legg had many years of field selling experience before his appointment in 1934 to the post of manager of National Direct Division with headquarters in Detroit. Subsequently, he was named sales manager of the Leonard Division, later Western Sales Manager for Kelvinator, and from 1941 to early 1943, household sales manager. For the past year, he has specialized in developing a postwar program for the products of the division he now heads.



SANITARY *Quicfrez* FARM LOCKER PLANT

Hundreds of farm families have already proven the benefits of the QUICFREZ in freezing and preserving all farm-grown foods.

There will be **no waiting** for engineering developments when full production is permitted on this new streamlined QUICFREZ FARM LOCKER PLANT.

Descriptive literature now available.

Illustrated—Model No. 1544. Capacity, 15 net cu. ft. Holds up to 750 lbs. of frozen meat.

SANITARY REFRIGERATOR COMPANY
Fond du Lac, Wisconsin

BUY WAR BONDS NOW . . . FARM LOCKER PLANTS AFTER THE WAR

---

4 REASONS Why I use GRUNOW WHITE OIL!

1. Specifications of Grunow oil are the same as the original oil in the refrigerator.
2. Grunow oil is refined so carefully that repeated tests show less than 3/100% maximum sludge.
3. Substitutes may seemingly work o. k., but if they have not been completely dehydrated, will give poor lubrication, causing scored bearings, sticky vanes.
4. Future profits are protected with the few cents extra that Grunow oil costs.

● SEND FOR NEW, CONDENSED GRUNOW SERVICE MANUAL! PRICE 50c

Grunow AUTHORIZED SERVICE, INC.

FACTORY TESTED PARTS

4313 W. Fullerton Avenue, Chicago, Illinois

Servel Plans Expansion of Post War Production

AT SERVEL'S recent bi-monthly conference of Regional Managers and sales personnel announcements were made of plans to expand production of condensing units by the Electric Refrigeration Division, and of promotions among sales personnel of that division.

It was revealed that in keeping with Servel's plan for maximum post-war employment, the company's commercial refrigeration activities will be greatly expanded. A new line of hermetically sealed condensing units for all popular commercial applications is ready for tooling, and enlarged quarters have been earmarked for this division's manufacturing facilities.

This plan is in keeping with Servel's general program to participate in every phase of refrigeration activity serving, as it does, a distinct field between the Servel Gas Refrigerator and Servel All-Year Air Conditioning for homes.

Sales Activities

Sales activities of all divisions of the company are under direction of Geo. S. Jones, Jr., vice-president in charge of sales. At the meeting Mr. Jones announced that the management of sales in the Electric Refrigeration Division has been placed in the hands of three men, W. J. Aulsebrook, Harry F. Bell, and Carl L. Olin, all of whom have been associated with this work for a number of years.

W. J. Aulsebrook, who started with Servel as service manager of the Rocky Mountain Division in 1926 and who has been assistant sales manager of the company's Electric Refrigeration Division for several years, will have charge of the home office, contracts, sales promotion, and general internal activities.

Harry Bell, who has just been promoted from Eastern District Manager to assistant sales manager, came to Servel in 1936, after several years with the company's Boston distributor. He has been given the responsibility for supervising the activities of field sales personnel.

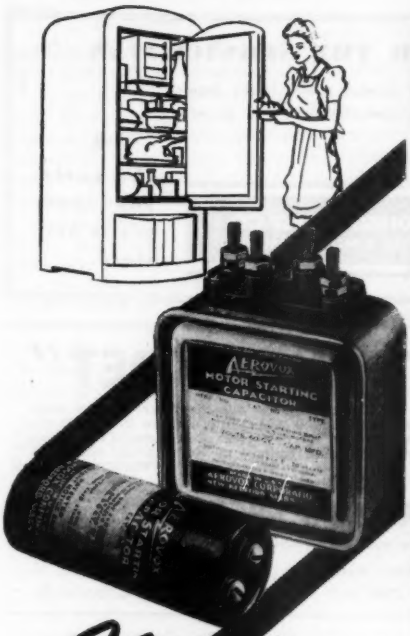
Carl Olin, who has also been promoted to assistant sales manager, has for some time been manager of Western National Accounts. He will continue on this work, assume responsibility for industry association work, and correlate contacts between the sales and engineering departments. He also has been with Servel's Electric Division for over eighteen years.

Steps are being taken to add to sales department personnel to give greater field coverage and strengthen the factory's contacts with customers.

HARRY F. BELL
Asst. Sales Mgr. Servel, Inc.

CARL L. OLIN
Asst. Sales Mgr. Servel, Inc.

W. J. AULSEBROOK
Asst. Sales Mgr. Servel, Inc.



Millions now in daily use

● Always remember, Aerovox has made the major portion of those millions of motor-starting capacitors now in daily use. And Aerovox is offering the outstanding line of Victory replacements to help you keep those refrigerators going for the duration at least. ● Ask our jobber for Aerovox motor-capacitor replacements. Ask for latest listings. ● Or write us direct.

AEROVOX Capacitors
INDIVIDUALLY TESTED

AEROVOX CORP., NEW BEDFORD, MASS., U. S. A.
In Canada: AEROVOX CANADA LTD., HAMILTON, ONT.
Export: 13 E. 40 St., New York 16, N.Y. Cable: "ARLAB"

Refrigerants have gone to war — are high on the list of vital materials. Don't let hidden leaks waste them.

VISOLEAK **is composed of fine refrigerant oils colored and treated to penetrate every nook and cranny of the system, keeping a constant check for annoying, expensive hard-to-find leaks.**

If refrigerant can leak out, so can *VISOLEAK* and it will mark the leak with a dark red stain.

VISOLEAK **is safe—safe with any refrigerant and effective with systems of all types. It is non-toxic, non-poisonous, non-corrosive and non-inflammable.**

VISOLEAK **is economical—**

Wholesale Prices		Save 10% on case lots
4 ounce bottle	$1.00	48 bottles
8 ounce bottle	1.75	24 bottles
1 pint bottle	3.00	24 bottles
1 quart bottle	5.00	12 bottles
1 gallon can	16.00	6 cans

See your jobber or write for complete information

WESTERN THERMAL EQUIPMENT COMPANY
1141 Angeles Vista Blvd. ● Los Angeles 43, California

Please send me complete details about *VISOLEAK*.

Name _____

Address _____

_____

SUPPLY CENTER FOR THE SERVICE MAN

Our stock insures you rapid service *now*. That's important today. For all refrigeration supplies, call or write

Our South Side Branch 809 W. 74th St., Chicago, has a complete stock for your convenience.

Automatic
HEATING & COOLING SUPPLY CO.
647 WEST LAKE STREET, CHICAGO, ILLINOIS

The parts you need are in our stock.

"IT'S NO MILITARY SECRET"

Out where a man MUST know—where help is not just around the corner—where a man must have the persistence and know-how to stay with the tough ones until they're licked—that's where you'll find Commercial Trades' graduates, trained by us for the U.S. Army. This same Army-approved training is now available to you. Resident courses or Home Study combined with actual shop work. Prepare now to move ahead in a live-wire industry. Write today for free booklet.

COMMERCIAL TRADES INSTITUTE

School of Refrigeration and Air Conditioning

Chicago, Ill. 221 N. LaSalle St.
Birmingham, Ala. 200 S. 20th St.
Bloomington, Ill. 300 E. Grove St.

NEW APPLIANCES

(Continued from page 48)

by two 7½ horsepower motors. High temperature rooms will be maintained at 40° F. and low temperature rooms at 15 degrees above zero.

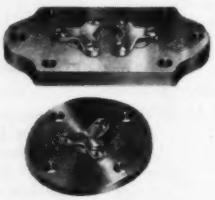
The idea of unitary equipment, preassembled at the factory, has also been carried out for the evaporator controls. The thermal expansion valve, solenoid valve, hot gas defrosting valves, thermostat and dial thermometers are all compactly arranged in flush mounted cabinets 24 inches square by six inches deep with necessary connections to the compressor and cooling coils.

Does the Valve Seat?

WHEN installing a new valve a good kink is to file a notch in the handwheel to indicate the closed position. You can then always be certain when the valve is closed. In the event that an obstruction gets into the seat the valve will not close. The filed notch then gives visual evidence of the obstruction and indicates that the valve "needs fixing."—W. F. S.

New Line Valve Plates

A COMPLETE new line of valve plates for general replacement use on all makes of refrigerators has been announced by the Chicago Seal Company. Of particular interest to service men is the fact that the new plates have removable valve seats, which make it possible to replace only worn parts, not entire units.



The units are simply taken apart by merely removing the screws and pulling the seat out with the fingers. Valve seats are firmly held in position by a retainer bar which is strongly secured to the plate. Manufactured of finely machined materials, the new Chicago Valve Plates are available in all sizes for exact replacements on all popular refrigerators.

Trade Announcement

CARROLL E. ("Borie") LEWIS has joined Perfex Corporation, Milwaukee as vice-president and manager of the Controls Division. Mr. Lewis comes to Perfex from the Delco Appliance Division of General Motors Corp., Rochester, where he has served as general sales manager for the past five years.

He originally joined the Frigidaire Division of General Motors, later becoming the Air Conditioning Sales Manager of Delco-Frigidaire Conditioning Division.

A pioneer in the air conditioning field, Lewis has served as a consultant and as head of his own company. He has been president of the Oil Heat Institute since 1941, and has also been active in the Stoker Manufacturer's Association and in the American Society of Heating and Ventilating Engineers.

GOVERNMENT BUREAUS

(Continued from page 19)

Ice Cream Quotas Raised

THE War Food Administration has taken action to permit manufacturers of frozen dairy foods to make more ice cream during June and July than has previously been announced in order to help assure full utilization of the exceptionally heavy milk output expected during these two months.

Quotas limiting the amount of milk solids which each manufacturer may use in June and July, 1944, have been raised to 85 per cent for June and to 75 per cent for July.

As a result of this and previous adjustments, production of ice cream and other frozen dairy foods for civilian use during the summer should be more than 30 million gallons greater than that of last summer.

Combat Materials Made by Refrigeration Plants

SHIPMENTS of combat material from 85 plants that were engaged primarily in the manufacture of domestic and commercial refrigeration equipment before the war reached an all-time high of almost $150,000,000 in the last quarter of 1943, the War Production Board reported May 4.

Shipments of all products, combat material, refrigeration equipment, and other goods from the same plants totaled more than $200,000,000 for the same period. Enough unfilled orders of all kinds were on hand at the end of 1943 to keep the industry busy for about a year at the fourth-quarter rate of production, WPB said. This does not take into consideration possible cutbacks in military programs.

Total employment in the 85 plants reached a peak of 73,000 wage earners in October, 1943, an increase of 60 per cent over the June, 1942, total. Over-all employment and unfilled orders continued at a high level through the end of 1943.

NATIONAL REFRIGERATION SERVICE COUNCIL

(Continued from page 40)

Reference should also be made to the suggestions given on pages 8 and 15 of the manual for the Manpower and Training Program. If efforts to solve these problems on a local level are not productive, it is suggested that details be forwarded to Emerson Brandt, Coordinator, Prices and Wages, 435 No. Waller Avenue, Chicago 44, Illinois.

Injurious FUMES!

● Whether refrigeration gases are fatal or merely irritating, maximum protection is a safety requirement. The first step is to disperse fumes if possible. Then . . .

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CESCO's No. 605 Fume Kit offers *triple protection* to refrigeration servicemen. Quick-change filter cartridges provide safety against ammonia fumes, methyl-chloride and sulphur-dioxide . . . *all in one convenient kit.* The soft molded rubber face-piece of the fume mask, and the instantly adjustable headgear, assure a gas-tight, comfortable fit for every wearer. Large safety glass lenses give perfect visibility.

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Nobs specialized Solvents and Water Conditioners are used by manufacturers of cooling and refrigeration systems and by service men and operators.

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RECENT WPB BULLETIN

Maybe in past years you have not been accustomed to stocking parts and supplies to take care of your summer "peak," but this year WPB urges you to anticipate as far in advance as possible. That means just one thing: Go through your **AIRO catalog**, page by page, and order your needs today. Of course, if you haven't a copy of AIRO's Victory Catalog, we'll send you one promptly. (Please write on your letterhead.)

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Refrigeration Parts, Equipment, and Supplies

H. T. McDERMOTT, EDITOR AND PUBLISHER OF REFRIGERATION SERVICE ENGINEER

AT A recent meeting of the stockholders and Board of Directors of Nickerson & Collins Co., Chicago, publishers of THE REFRIGERATION SERVICE ENGINEER and *Ice and Refrigeration*, H. T. McDermott was elected president of the corporation to succeed the late J. F. Nickerson. He assumes the position of Editor and Publisher of THE REFRIGERATION SERVICE ENGINEER. Other officers elected were H. T. Curtis, vice-president, and L. R. Townsley, secretary-treasurer.

Mr. McDermott was associated with Mr. Nickerson continuously for thirty years except for a period of twenty months' service with the U. S. Army, eighteen of which were spent in the South Pacific. He returned on May 1st. He has served in successive capacities in the company as manager of the Advertisers' Service Department, Advertising Manager and Vice-president.

His close association with Mr. Nickerson has provided a background of experience and knowledge of the policies responsible for the recognized position THE REFRIGERATION SERVICE ENGINEER occupies in the industry.

Associated with Mr. McDermott on the editorial staff are H. D. Busby, Technical Editor, and E. R. Curry and Emerson Brandt, Associate Editors.

* * *

NEW REFRIGERATORS MUST WAIT

THE post-war refrigerator with its revolving shelves, transparent cabinets, automatic electric eye doors and ice chutes will be the exception rather than the rule when civilian production is resumed, according to W. Paul Jones, vice-president in charge of refrigeration for Philco Corp.

Mr. Jones says the first refrigerator to reach the consumer when production is resumed will not be radical or revolutionary in design. This is based on the premise that manufacturers, distributors and dealers will be anxious to get back into civilian business quickly and the problems of immediate production and transportation of materials will make it practically impossible to introduce radical design changes and tooling up for new models immediately.

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GENERAL CONTROLS AWARDED ARMY-NAVY "E"

AT IMPRESSIVE and colorful ceremonies March 29, 1944, officials, supervisors and employees of General Controls Co., Glendale, Calif., were awarded the Army-Navy "E" for excellence in producing automatic controls for aircraft and ordnance.

View of presentation ceremonies General Controls

Major Howard H. Adams, District Public Relations Officer, A.A.F., Materiel Command, was master of ceremonies. Main address and presentation were made by Major Justin C. Gunnison, A.A.F., 12th Air Force, who has to his credit a total of eighty bombing missions in the Mediterranean theatre. W. A. Ray, president and chief engineer of the company, accepted the Award pledging continued effort and performance on the part of all 800 men and women of General Controls.

General Controls manufactures a complete line of automatic temperature, pressure and flow controls, maintaining branch and sales and service agencies in principal cities.

S S S

NEW IDEAS ON SODA FOUNTAINS

A CONTEST to stimulate the development of new ideas for soda fountains has been originated by The Bastian-Blessing Co., Chicago, Ill. Contestants are asked to write or draw their ideas on an entry blank supplied by the company. The contest closes June 30, 1944. Prizes totaling $2,500 in war bonds are offered. Complete details are told in a special folder issued by the company.

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Prime Surface

COLD PLATES

Maximum Refrigeration Efficiency

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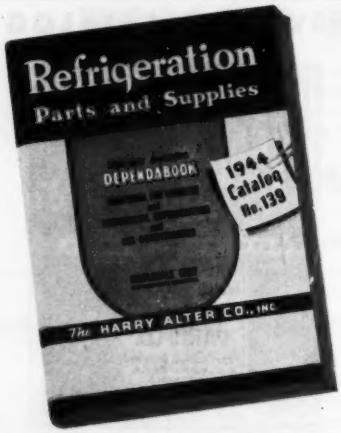

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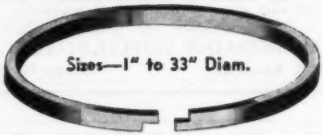

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Index to Advertisers

Aerovox Corporation 55
Airco Refrigeration Parts 62
Airo Supply Co. 58
Alco Valve Co. ..... 6 and 7
Alter Company, The Harry ..... 59 and 62
Ansul Chemical Company 1
Auto-Diesel Piston Ring Co. 62
Automatic Heating & Cooling Supply Co. 56
Automatic Products Company ..... 32 and 33

Ben-Hur Mfg. Co. 00
Blythe Company, H. W. 61
Bonney Forge & Tool Works ..... Back Cover
Brunner Mfg. Co. 49

Chase Refrigeration Supply Co. 63
Chicago Eye Shield Co. 57
Chicago Seal Co. ..... Inside Front Cover
Chicago-Wilcox Manufacturing Co. 61
Commercial Trades Institute 56

Davison Chemical Corp. ..... Inside Back Cover
Day & Night Mfg. Co. 00
Dayton Rubber Mfg. Co. 00
Detroit Lubricator Co. ..... 2 and 3
Dole Refrigerator Company 62
Du Pont de Nemours & Co., E. I. 4

Edison Cooling Corp. 63
Electrimatic Valve 50

General Controls 64
General Electric Co. 00
Grunow Authorized Service, Inc. 53

Henry Valve Company 41
Highside Chemicals Company 10
Hubbell Corporation 61

Imperial Brass Mfg. Co. 5

Jarrow Products 62

Kerotest Mfg. Co. 13
Kinetic Chemicals, Inc. 47
Kramer Co., Fred C. 60

Lynch Mfg. Co. 43

Marsh Corp., Jas. P. 00
Mayflower Products, Inc. 62
Modern Gas Company, Inc. 51
Mueller Brass Company 8

Nash-Kelvinator Corp'n. 35
New Duty 61
Nobs Chemical Co. 58

Penn Electric Switch Co. 00

Ranco, Inc. 14
Refrigeration Surplus Dealers 61

Sanitary Refrigerator Co. 53
Servel, Inc. 46
Service Parts Company 61
Spoehrer Lange Company 45
Standard Solvent Co. 63
Stangard Dickerson Corp. 60
Superior Valve & Fittings Co. 59

Table of Contents 15
Tecumseh Products Company 12
Temprite Products Corp. 39

United Speedometer Repair Co., Inc. 63
Utilities Engineering Institute 51
Utility Thermostat Co. 61

Virginia Smelting Co. 11

Wants, For Sale, Etc. 63
Weatherhead Co., The 16
Western Thermal Equipment Company 55
White-Rodgers Electric Company 9

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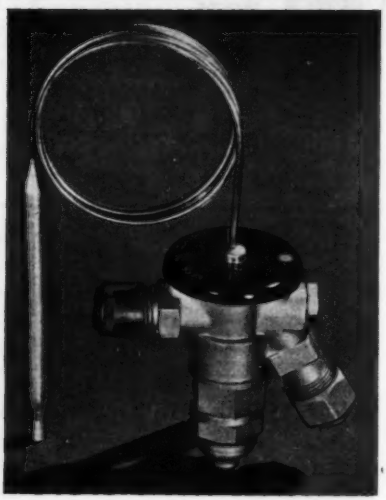

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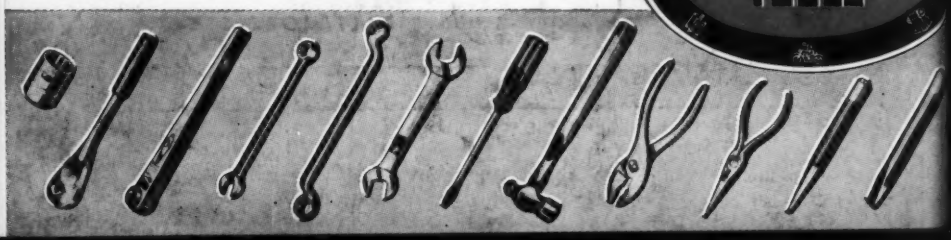
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